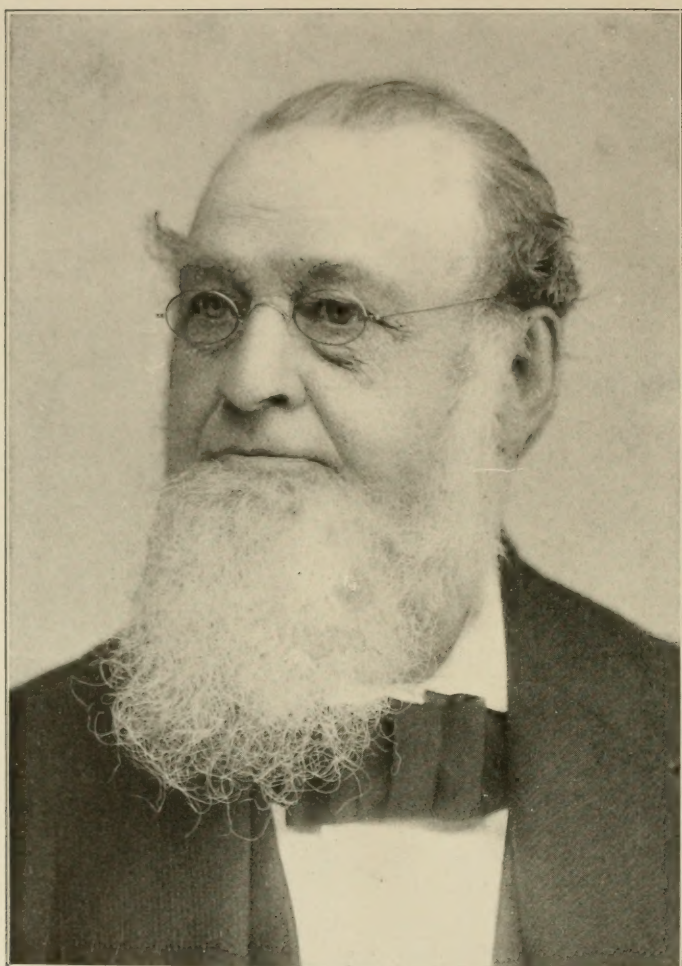


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BOTANY, PHARMACY AND
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J. U. & C. G. LLOYD

CINCINNATI, OHIO


PHARMACY SERIES, No. 2.

THE ECLECTIC ALKALOIDS,
RESINS, RESINOIDS, OLEO-RESINS AND
CONCENTRATED PRINCIPLES.

Including Portraits and Biographies of

JOHN KING, WILLIAM STANLEY MERRELL, ALEXANDER WILDER,
WILLIAM TULLY, GROVER COE, ROBERT STAFFORD NEWTON,
EDWARD S. WAYNE, CALVIN NEWTON and JOHN
COAKLEY LETTSOM.

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PREFACE.

It is not necessary to inform the reader that this BULLETIN comprises but a fragment of what needs be recorded, were it our object to present a complete history of the Concentration feature of the American materia medica and its journey within the dates embraced herein. Every page carries its own suggestion of complications in connected or outside lines that must necessarily be wholly neglected, or touched but briefly. Every personage mentioned and every incident depicted leads to some feature of importance that merits more than a passing notice; so much so, that it appears to the author as though the most vital parts of the BULLETIN are too much abridged. To attempt to explain intelligently the many features closely connected with the contents of this BULLETIN would necessitate detailed descriptions and histories of adjacent lines of compounds, as well as of connected classes of pharmaceutical preparations, that in themselves merit as comprehensive a study as the author has herein given the "American Concentrations." Indeed, the necessity of doing justice, even though but scant, to our subject, and yet of neglecting exceptionally interesting subjects, or evading many interlocked complications that uprise in this or that direction, has been one of the most perplexing features of this attempt to make a comprehensive but brief record of the American concentrations, alkaloids, and resinoids. In every direction it seemed as though the efforts of the persons concerned in the products under consideration were irrevocably interlaced with other features of this American problem. For example, the pharmacy of the crude mixtures, decoctions, infusions, and acetates of the early days, the fluid and solid extracts, the essential tinctures, concentrated tinctures, Specific Medicines, and such, of more recent days, as well as the alkaloids, glucosids, and essential oils are not directly embraced in the scope of this publication, but are nevertheless intricately involved therein.

It will be perceived that the so-called Eclectic resinoids, alkaloids, and resins were intruded into the passing along of the science of pharmacy, materia medica, and medicine of the nineteenth century, much as a foreign body, for a temporary purpose, becomes a part of a structure from which it is afterwards excised, leaving in the end a few remnants only to tell the story of its former usefulness. It is as the

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superstructure to a bridge that, supporting the incomplete edifice, is vital to its very construction, but yet is finally torn away by its own builders. All of this, however, and much that needs not be referred to in detail, will unquestionably appeal to the intelligent reader, as it does to the author, who fully, but yet regretfully, comprehends that which lies in the outreaches beyond the subject under discussion.

As concerns the American materia medica, its pharmacy and record, the author therefore considers this BULLETIN as merely an introductory chapter, which, with others yet unwritten, antedating as well as following this, would make the story complete. Nor does he hesitate to confess that he hopes some day to supply the missing chapters, as he has learned them. But should want of time necessitate, he must leave this most fascinating subject to the enjoyable opportunity of others.

It has been deemed advisable to introduce portraits of the principal persons involved in this record of the past. Most of those presented were in former times personal friends or acquaintances of the author, but all have passed away. The biographical sketches accompanying the portraits seem naturally, to the author, very brief, but he hopes that enough useful information is presented to introduce each fairly to the reader. Detailed descriptions of the lives of some of these men would necessitate a volume.

It may seem to our readers that many to whom reference is made in this work, but who yet are not portrayed, are even more important than some here presented. This the author appreciates, but will add that in many instances, as with Beach and Scudder, their most conspicuous work was in other sections of the American materia medica and pharmacy, and when such portions of the work are taken up in detail, whoever has that responsibility will surely find it necessary to portray and give biographical references to these men. Should the author be permitted to complete this study, as he has intimated he hopes may be the case, such men as Greve, Proctor, Parrish, Squibb, Zollickoffer, Waterhouse, Thacher, Dunglison, Cullom, and others who could well have a place here, but whose work was more conspicuous elsewhere, will surely be presented. Some there were, like Mr. B. Keith, of New York, who should here be presented on account of their prominence in the evolution of the "American Concentrations," but although no effort was spared to obtain biographical data or a portrait, this was found impossible at this late period, much to the author's regret. For a different reason, no special place is given to either Samuel Thomson or B. S. Barton, M. D., the former of whom is the subject of Lloyd Library Bulletin Number 11, while Lloyd Library Bulletin Number 1 reproduces the "Collections" of Barton, both of these Bul-

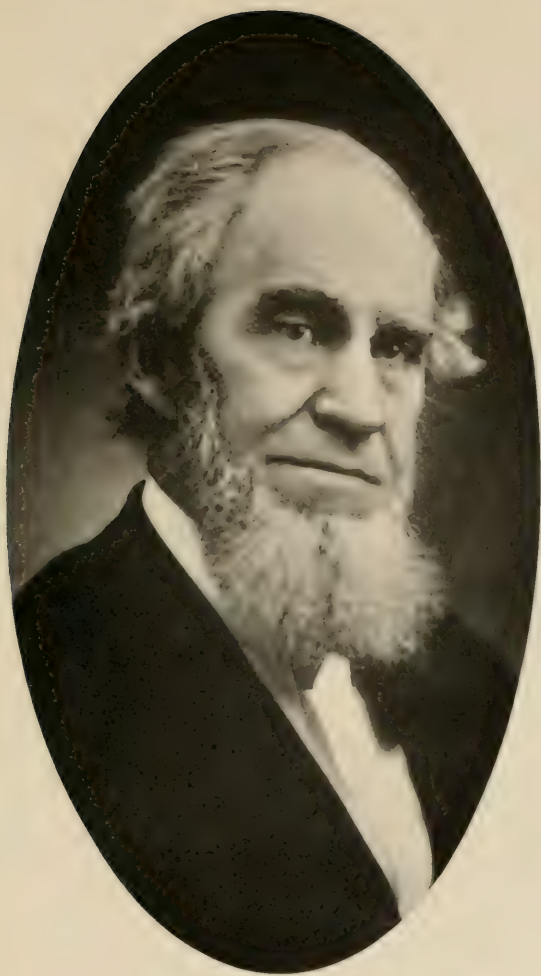
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letins carrying frontispiece portraits, as well as biographies of the authors named. In consequence of the fact that the portraits would have been too closely crowded together, had they been placed in connection with the pages referring to each, they are distributed promiscuously throughout the work.

The author desires to extend his special thanks to Professor Harvey Wickes Felter, M. D., to whom he is indebted for the photograph of Dr. John King, as well as to his biographies of the two Newtons and Dr. Wilder, in the *Eclectic Medical Gleaner*, published under the auspices of the Lloyd Library. Thanks are due also to the Librarian of the Lloyd Library, William Holden, M. D., and his Assistant, Miss Edith Wycoff, as well as to the Secretary of the author, Miss Margaret Stewart. To all of these the author is deeply grateful, and to their watchful care this BULLETIN owes much.

For the biographies, the footnotes, and all uncredited material of this BULLETIN the author is responsible.

JOHN URI LLOYD.



WILLIAM STANLEY MERRELL, M. D.

The Eclectic Alkaloids, Resins, Resinoids, Oleo-Resins and Concentrated Principles.

HISTORY (1839-1910.)

Condition in Therapy Preceding the Concentrations.—

The story of the "Eclectic Concentrations" can not be intelligently presented without picturing, briefly, social conditions as well as various problems concerning medicine and pharmacy at and preceding the date of their introduction. Nor can this story be fairly told, even at this late day, without many regrets, even though its various phases be handled in the most sympathetic manner. Appalling is the record left in print concerning the cruelties and the crudities at that date practiced in the name of medicine. Pathetic is the recollection of the effects of the old-time standard medicines. The story is one and the same, whether the treatment be that of a strong man attacked by an acute trouble, undergoing a course of mercurial cathartics, bleeding, and cantharides blistering; of a tortured girl in the last stages of consumption, with breast a running sore from the tartar emetic plaster, or croton oil vesicant, applied by the physician; or the fever-parched, helpless child, confined in a hot, closed room, denied a breath of fresh air, vainly pleading for a spoonful of cold water or a bit of nourishing food. Alike the course of authoritative medicine and of primitive dosing, whether in Europe or America, consisted in cruelty piled on top of torture, of catharsis to physical depletion, of cupping blood through the skin, and the copious abstraction of much-needed life blood from the veins of a patient who had been starved to exhaustion, by direction of the man who blistered and bled and purged. Then, the step of the physician made the sick man shudder. At the word *medicine* the child would cry in fear.

According to the medical theories largely prevalent in the Mediæval past, diseases were to be considered not as departures from the normal, but as the effects of aggressive devils or evil spirits, to be driven out by fire and sword. The era had but recently passed when religious conceptions of supernatural influences by the powers above and below were connected with bodily ailments and afflictions. Tra-

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ditions that had traveled down the centuries bound men unaware of such subjection, to conceptions concerning disease difficult now to comprehend. Astrology and the influence of the planets, and the belief in the mysterious power of the number 13, is even to-day a study of men possessed of balanced education, whilst as late as the day of Culpepper the description of each plant was prefaced with the name of the planet that was supposed to dominate its action. Far back of it all, and yet influencing it all, is seen the age of imaginative conception, of poetic imagery, that constructed gods and goddesses, such as directed the affairs of men in the day of the glory of Olympus. Natural, was it not, that out of this epoch of necromancy, superstition, and fantastic poesy, diseases should have been viewed as essences from without, sent by an omnipotent Creator or an antagonistic devil to torture the flesh of man? Nor could it be expected that an empirical art, linked with such as this, should have lost its traditions by being transplanted to America.

In the opinion of even authoritative practitioners of medicine of Colonial days, the devilish or spiteful intruders could no more be subjugated by kindness than could the Prince of Evil be subdued by friendship. But yet the man of medicine might not openly view them as devils or spirits of evil, and might resent such a reflection. But, whether the *ideas* of old prevailed or not, the *methods* of old yet lingered. Although the disgusting animal remedies once favored were neglected, the most poisonous of drugs were administered in heroic dose, or the method that was the most barbarous or disagreeable, was considered, even by conservative therapeutic authorities, including the most sympathetic physicians, at the date of the introduction of the "American Eclectic Concentrations" as the remedies most likely to serve the sufferer and to save life.

In view of these conditions, need any apology be made for the fact that the remedial agents of the first part of the last century were necessarily either nauseating and disgusting, or vicious, cruel, and in dosage too often deadly? Whosoever will study the records of the past will perceive that, whilst poisonous drugs, nauseating doses, and excruciating applications were authoritative favorites, the substances that produced the most pronounced shock were viewed with the greatest favor, even though they were directly followed by marked or even serious after-consequences, in some instances more terrible than the primary disease for which they were administered. Let any pharmacist or physician, of any school whatever, read the story of those days, as voiced in the authoritative medicaments and by the treatment of licensed physicians, as well as that given in many works

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then standard, on Practice and Materia Medica, and consider how he would feel *now*, were he to attempt to practice his art under the limitations then rigorously enforced, or what would be his course were a loved one undergoing the ordeal. To place oneself in that critical attitude is to stand where stood the *protestors* against medical authority, in the beginning of the last century.

The Uprising.—In that day in America the dogmatism of intolerance dominated those in power, whether in politics, religion, or medicine, and possibly nowhere was the battle more fiercely fought than in the last-named field. The physician who discredited the prevailing methods, and who was courageous enough to voice his protest, was likely to be ostracized by many of his brethren, as a person tainted with quackery and linked with charlatanism. Intelligent and educated laymen, protesting against the barbarisms to which their loved ones were being subjected in the name of authoritative medicine, were, as a rule, neither given a respectful hearing, nor recognized as entitled to any consideration whatever. The first great American "Trust" was that formulated in behalf of medicine, medication, and dogmatism such as this, though, be it said, its votaries *believed* their crusade to be in the direction of the suppression of quackery advocated by men incompetent to know what was needed in medicine. Out of it all came naturally a popular uprising against the methods of "Fashionable Doctors." It was born of a wave of righteous indignation—not against individuals—but against cruelties almost universally practiced, and against fallacies that were apparent to all but those involved in their practice.

In that period also arose, of like necessity, the kindly European Homeopathic school, as an emphatic protest against all that was cruel and destructive. Even doubters of Hahnemann's theory believed that a peaceful, natural death was to be preferred to one of needless torture, and that it were better to take no medicine at all, and in a spirit of hopefulness allow nature a chance, than to follow the way of those who passed into the hands of such practitioners as the famous English Dr. Lettsom (John Coakley), concerning whose methods a critic ventured to write:

I puke, I purge, I sweats 'em,
And if they die,—I* Lettsom.

Into such times as these, and among such methods as then prevailed, came Wooster Beach, Samuel Thomson, John King, and other

* At that date the letter *I* was often substituted for *J*.

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American reformers from both within and without the only authoritative school of medicine then existing, for no recognition had as yet been given the followers of Hahnemann. Moved alike by the same cry of tortured loved ones that swept over America as it did over Europe, this conglomeration of dissenters united against a common enemy. During the first part of the nineteenth century these and such as they, educated and uneducated—many qualified by law to practice medicine, but the majority ignorant of the very principles of therapy—conducted their crusade against death-dealing medicines and the wrongs of a system of medication whose votaries so often considered the advocating of kindness to the sick as rebellion against lawful authority, and the application of humane methods to the suffering, as a crime against established science.* Throughout all America came this uprising of the people, no section being exempt. From Massachusetts to Florida, from the Atlantic to the Mississippi, the rebellion raged. It was a combination of the unorganized, unprofessional majority, assisted by an inside, rebellious, self-sacrificing, professional minority. It was a home-to-home crusade, that needed no outside witnesses, no argument from afar, because in every American household pleaded the face of a tortured loved one, or lingered the memory of one who had failed to withstand the physician's inhuman ordeal.

Thus it was that, powerless to effect reformation within the ranks, men of learning, as well as the common people, formed their "societies" in the great outside, their object being alike to serve humanity and, as they also hoped, the cause of medicine. This latter object could be attained only by discovering better, and milder, remedies than those transplanted from abroad, to be employed by somewhat similar but yet more kindly methods.

With this in view, a great section, seeking a *new materia medica*, turned naturally to the development of American remedies of botanic

* It must not be forgotten that this crusade in behalf of the people was favored by a large number of physicians and many authorities of the dominant school, for among the most aggressive of the protestors were numbered many physicians who rebelled against the barbarisms then prevalent in medicine. Not all medical authorities were content to accept the dogmatism of that date. Read the Collections of B. S. Barton, M. D. (Lloyd Library Bulletin No. 1) or Zollickoffer's *Materia Medica*, or Tully's great two-volume treatise, or even Thacher's *Dispensatory*, to perceive that the dissenters had earnest co-laborers within the medical trust. See also Lloyd Library Bulletin No. 11. Read the letters of the talented Professor Waterhouse, M. D., of Harvard University. Remember that Wooster Beach was a graduate of the Medical Department of the University of New York, and John King was an educated man of many languages, a lecturer on such scientific subjects as geology, magnetism, astronomy, and physiology in the Mechanics' Institute of New York before he took part in the American crusade for better medicines and kindlier medication. But such facts as these did not prevent such men as these from being ostracized (by authority) as quacks and charlatans.

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origin.* The preparations employed were simple and compound syrups, tinctures, acetates, juices of plants both fresh and dried, as well as powders, infusions, and decoctions of substances generally fitted for domestic preparation. As a rule the dose was large, often distressingly nauseating, and in some cases barbarous, as judged by the standards of the majority of physicians to-day, for even these "Reformers" could not, at the start, disenthral themselves from the transplanted, Mediæval, European medication fallacies and the methods that encompassed and entangled them. Cullen's *Materia Medica and Practice*, the Edinburgh and London Dispensatories, the works of Quincy and of the domestic European empiricists of that date were in many American households, and these, together with traditional precepts, could not but make an impression. Even those in rebellion against dominant methods too often imagined that a medicine, *to be useful*, must be disagreeable, and that the depleting action of both the cathartic and the emetic was a necessity, in the simplest ailment. The phantom of "disease devils" still lingered, and tintured the methods even of the revolutionists. Thus it came that too many of the reform remedial substitutes, introduced to replace more barbarous remedial agents, were themselves viciously energetic, whilst the primitive surgery of those days is frightful to contemplate. Witness the treatment by his father (from which he barely escaped with his life) of that arch-rebel of them all, Samuel Thomson, in the case of a severely cut ankle.

I had the misfortune to cut my ankle very badly, which accident prevented me from doing any labor for a long time, and almost deprived me of life. The wound was a very bad one, as it split the joint and laid the bones entirely bare, so as to lose the juices of my ankle joint to such a degree as to reduce my strength very much. . . . My father, in dressing my wound, had drawn a string through between the heel-cord and bone, and another between that and the skin; so that two-thirds of the way round my ankle was hollow.—*Lloyd Library Bulletin*, No. 11, pages 6 and 7.

No intelligent patient of to-day would tolerate either Samuel Thomson's heroic courses of lobelia medication or Beach's too frequently nauseating, botanic drug mixtures, nor would such systems be unflinchingly practiced to-day by an Eclectic or Thomsonian physician of repute, any more than would the Allopathic medicine and methods, then "Regular," be followed now by the most orthodox in the ranks. But severe as were the methods of the reformers, they were soothing and

* Talented men in authoritative positions also cherished hopes concerning the possibilities of the American Flora. The two Bartons, Thacher, Zollickoffer, even Dunglison, may be cited. However, with the advent of the "Irregulars," the "Botanics," the "Indian Doctors," and such, the "Regular" profession, strangely enough, relinquished their study of the American Flora and, yet more strangely, ostracized the intelligent outsider who was specializing in this line. In this they lost a mighty opportunity.

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kindly, as contrasted with the blistering, bleeding, purging, and vomiting of those practicing the imported, Mediæval system of European medication. Largely for this reason "domestic" and "Irregular" medication became the hope of a great section of the American people.

The view presented, when from this distance the epoch is taken as a whole, is surely sufficient to enable one to comprehend much that the actors, involved in the passing along, could not perceive. A far-reaching social revolution was in progress. One party believed in *tradition* and in *authority*, and held that progress must come from *within*, and not from *without*. The other party, perceiving only the wrong of methods established, as they believed, in error and superstition, became hopeless of their correction by the men practicing those cruelties. It was a far-reaching uprising, in which a people more enlightened than formerly, more independent of authority than ever a people had been before, united in a rebellion, not against individuals, but *conditions*. It was a campaign of education, in which the side in power was organized, trained, and all-powerful; the other was heterogeneous, composed of the ignorant as well as people of education, who presumed, for love of humanity, to demand of authority that cruelty in behalf of tradition be abolished. In this mighty uprising the alkaloids, resinoids, and such came into play, but were an incident only. They failed primarily, but yet served a mighty secondary purpose, for they hastened the day when Eclectic physicians and a great part of the dominant school should abandon heroic dosage as well as depleting medication.*

Necessity for Concentrated Remedies.—The small doses of the mineral remedies, such as tartar emetic, calomel, corrosive sublimate, and the iodides, as well as the energetic organics, such as gamboge, opium, and others that the reform physicians were trying to replace with remedies more kindly in action and after-effect, were, by reason of their compactness, favorably contrasted with the large doses of such remedies as the syrups, tinctures, and crude powders, largely employed as reform substitutes. This made it essential that, if possible, concentrated representatives of the American plants be evolved. The necessity for this may be best shown by a contribution from Dr. King to the *Western Medical Reformer*, 1846, pp. 175 and 176:

I have for a long time noticed an obstacle to the progress of Medical Reform, with a very numerous portion of the community, particularly those who, when ill, desire the least medicine possible to effect a cure, which, by the way, is not a limited class. The obstacle is, the large doses and enormous quantities of medicine usually administered by those who practice with medical plants.

* Should the author presume, ever, to picture those times as he believes they should be pictured, a fund of curious extracts from past literature will prove available.

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However, there is no actual necessity for this; our medicines are as capable of being prepared in diminished quantities as any other, and when thus reduced, are much more effectual in their results. Thus, Blue Flagroot (*Iris Versicolor*) contains resin and mucilage; in the former reside its purgative and alterative properties, in the latter its diuretic. Then why administer the crude root in powder, in which these properties are combined with woody fiber and other inert substances, when a few grains of the proper constituents will answer? The same is the case with the Cohosh root (*Cimicifuga Racemosa*); its alteratives, anti-scorfulous, anti-rheumatic, emmenagogue, and other properties for which it is generally employed, reside in its resin.

For the last several years I have prepared my medicines, or, rather, those of which I make the most frequent use, in such a manner that the doses are much smaller in quantity than usual, and are fully as effectual in their results, if not more so, than are the same articles as generally administered. The object, particularly in chronic disease, is not to shock the system by repeated large quantities of active medicines, as is too much the case with practitioners, and from which cause very few *real and permanent cures* are effected in chronic cases,—but to give medicines in the least possible doses that may be found necessary to keep the system constantly under their peculiar alterative, tonic, or other action, and always in union with the other requisites of proper exercise, diet, cleanliness, etc.

This well recognized necessity of a more eligible pharmacy opened the door to the “Eclectic Concentrations.”

Discovery of Resin of Podophyllum the First “Eclectic Resinoid.”—In 1831 (*Am. Jour. Pharm.*, 1832, pp. 273-275) William Hodgson, Jr., made an assay of podophyllin rhizome, employing, after the methods of that date, destructive chemical reagents and heroic processes. The products obtained were all decomposition results, and thus Mr. Hodgson, through the process of too much chemistry (as now a common fault in plant examinations), failed to discover the natural energetic resinous constituent, afterward so conspicuous. (*)

In 1847 (*Am. Jour. Pharm.*, 1847, pp. 165-172) Mr. John R. Lewis again investigated the rhizome, and again applied too much chemistry, the result being a series of decomposition products, among which was one of slight cathartic action, very slight, as contrasted with the now well-known and simply prepared resin, eight grains being the cathartic dose as reported by Mr. Lewis. No argument is necessary to show that the resin, if present at all in his substance, existed in minute amount. Many writers, probably copying from each other, have continued voicing the error that the resin of podophyllum was discovered

* Mr. Hodgson has been referred to as the discoverer of the resin. We prefer to credit him with the first attempt at the assay of the root of podophyllum. The same is true of the examination made by Mr. Lewis. Neither of these investigators discovered the resin, neither of them pursued a process similar to that ever employed in its production, and neither of them claimed to have discovered the now well known cathartic.

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by Hodgson (1831), and that his product was verified by Lewis (1847). This, however, is not an excuse for the long neglect shown the real discoverer, Dr. John King, whose process of manufacture and product, as described by him (1835 and 1844), have been official in the pharmacopœias of all countries since the drug's introduction.

In 1835, Dr. John King (then a young physician of the Botanic, or "Irregular," School of Medicine), accidentally discovered, and then administered, the resin of podophyllum, which may be designated as the "resinoid fore-runner," because it constituted the first American member of that list of substances. Its discovery, and the serious consequences following the blunder of its initial administration, can best be stated in the words of Professor King, which I have, by authority, in his own handwriting:

NORTH BEND, OHIO, June 15, 1887.

PROF. JOHN URI LLOYD.

My Dear Sir,—At your urgent request, I will endeavor to give you a brief account of the discovery of the Resin of Podophyllum Root, more commonly known as "Podophyllin." My introduction to it was entirely accidental, and attended with very unpleasant circumstances.

In the fall of 1837,* I think it was, knowing nothing of this resin, an attempt was made to prepare a hydro-alcoholic extract from some forty pounds of the coarsely powdered Podophyllum Root. A portion of alcohol having been distilled over from the root tincture, water was added to the remaining tincture, the intention being to evaporate this diluted tincture that a hydro-alcoholic extract might be had, but night coming on, the process of evaporation was postponed until the following day. On the next morning, while stirring the cold mixture, numerous pieces of a dark, somewhat porous and rather brittle body were found in the fluid. Many were the surmises as to what they were, and the query arose as to their value, if any, as a medicinal agent.

In the midst of these speculations, a young lady, about seventeen years of age, who was present, complained of feeling ill. Having no idea of the intense activity of the article just discovered, I administered about twelve or fifteen grains. Nothing further was thought of the matter until about an hour afterward, when my attention was called to her condition. She was in severe pain and distress, cramps in the stomach and extremities, pulse small and feeble, extremities cold, excessive vomiting and hypercatharsis, and apparently sinking rapidly. Her condition greatly resembled that of a person suffering from a fatal attack of Asiatic cholera. To say that I was greatly alarmed would but feebly describe my mental condition. I ran to secure the aid of two or three professional friends, but could find none of them in their offices. Then I ran back again, trembling over what might be the consequences, and thinking out a course of treatment to pursue. A princely fortune could not induce me to undergo a repetition of such condition.

By the time I reached the patient, I had become more calm. A half-saturated, aqueous solution of potash saleratus was given, in tablespoonful doses, every ten minutes, several doses being administered before the stomach would retain

*The date was 1835, see Philosophical Journal and Transactions, 1844, Vol. I, pp. 157-166.



Alexander Wilson

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it; subsequently, the intervals between the doses were lengthened. Sinapisms were applied to the wrists and ankles; a fomentation of bitter herbs, as hot as could be borne, was applied over the stomach and abdomen, changing it as often as required. In about an hour the extremities became warm, and a general perspiration soon followed, with diminishing suffering and a partial return to a feeling of health and strength. In about an hour or two succeeding the improvement, the sinapisms were removed, an infusion of slippery-elm bark was ordered to be drunk freely, and about eight grains of the Compound Powder of Ipecacuanha and Opium were given every three hours. The next morning she was decidedly better.

In the course of the second day her friends allowed her to have a little soup, which was followed by a serious gastro-enteritic inflammation. The fomentations and sinapisms were repeated, and the Diaphoretic Powders continued, as well as the slippery elm infusion, to which some prepared charcoal was added, not daring to prescribe a more active laxative. By perseverance in this course, the patient recovered in six or seven days, but, unfortunately, with some chronic gastro-enteritic abnormal condition, that remained for many years. From this experience I was so influenced that I feared to use any of the remainder of the resin until at least eighteen months had passed, when I ventured a repetition of its use, but in much smaller quantity, and with most excellent results.

There, my dear Professor, you have in a nutshell my discovery, which led to further investigations, resulting in the obtainment of more or less active principles from other of our medicinal plants.

In closing, permit me to add that I have found your medicinal preparations, resinoids, concentrated remedies, etc., that I have had from you since you have entered into the manufacture, to be reliable and worthy of confidence.

Yours with Respect,

JOHN KING, M. D.

The alkaloids quinine and morphine, and the energetic resin of jalap, had but recently been established in authoritative practice as the pioneers of a new class of ultimates in plant products. These, evolved abroad from drugs of foreign origin, were naturally welcomed by the dominant school, which closely affiliated with all that came from Europe, and being energetic in small doses, they served well the heroics in practice. But it remained for Dr. King to take the first step in the direction of a similar class of American ultimates. At first Dr. King's experiments promised brilliant results. The energetic resin of *macrotys** was quickly followed by the resins and oleo-resins of iris, black cohosh, leptandra, and others. To his mind came then, naturally, the question as to why the major part of the American materia medica in use by the "Reformers" might not yield ultimates, many of them equally valuable, which in minute amounts would parallel the large doses of their respective crude drugs. Great was his enthusiasm in this work, greater was it in behalf of improved methods for curing disease by means of small doses of palatable

* Discovered by King shortly after the Resin of *Podophyllum*.

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medicines. Little, however, did he imagine, in the enthusiasm of his discoveries, that his own hand, in a day to come, was destined to deal the most crushing blow to these same products, when, by their indiscreet use and by reason of the commercial methods that were applied in their direction, they had all but wrecked the cause of Eclecticism, to which he had devoted his life work.

The original method of making the Resin of Podophyllum, as given by Dr. King in the *Medical Reformer*, was as follows:

I obtain only the resin, by extracting all that alcohol will take up, then filter the alcoholic tincture, to which I add an equal amount of water, and separate the alcohol by distillation—the resin sinks in the water.—*Western Medical Reformer*, 1846, p. 176.

This process, without materially* altering the product, was afterwards improved by evaporating the alcoholic tincture to a cream, pouring it into cold water, and collecting the precipitated resin. This resin stands to-day, as then, typical of the cathartic side of podophyllum, but it is yet not a representative of all that lies in podophyllum.† Nor is Resin of Podophyllum an isolated unity. It is a complicated educt from podophyllum, although all attempts to obtain from it a decomposition product or a fragment as comprehensively useful as the crude resin have as yet failed, and are likely to continue failures. The products made from it are but fragments of that “resin,” which, in itself, paradoxical as it may seem in the light of past criticism of the word “*podophyllin*,” is not a true resin.

Concerning the Name Podophyllin and the Class it Headed.—Among those who advocated the name “Resin of Podophyllum,” was its discoverer, Professor John King, to whom thus belongs not only the honor of discovering this substance, but of giving it the name “Resin of Podophyllum.” In its introduction he employed this term, but finally, reluctantly, accepted the popular name “*Podophyllin*,” making this the prominent name in the first edition of the American Eclectic Dispensatory (1852), though he supplemented it by calling the drug “*a resin, to which the name of Podophyllin has been given.*”

* This word is used necessarily. The resin made by King's original process is cleaner, and more energetic, than the resin made by the official process. This results mainly from the *dilution* of the extract (tincture) at the time of precipitation by the water. This permits the resin to fall in a state of very fine division, each particle being well washed of extractive matter by the water.

† *Scudder's Alterative*, yet a favorite remedy with many physicians, was designed to exclude the cathartic resin and to utilize the *tonic* constituents of this drug. See Am. Disp., 1866, and subsequent editions. Within the last year Dr. N. M. Dewees, of Cambridge, Ohio, has also introduced an Elixir of Podophyllum, long in use in his practice, that is very pleasant, very effective, and yet, in its acknowledged excellence, is dominated by the other podophyllum structures rather than by the drastic resin.

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Although the name *podophyllin* was attacked by Dr. Squibb and Professor Procter (see *Am. Jour. Pharm.*, 1868, p. 1), the late Mr. William S. Merrell, of Cincinnati, who first (1847) prepared the crude, resin-like precipitate for commerce, and who first used the term *podophyllin*, strenuously and ably defended that name. In reply to critics, he called attention (*Eclectic Medical Journal*, July, 1850, p. 299) to the fact that the names for *jalapin* (then established in "Regular" literature), and several other like bodies which were not definite chemical compounds, were devised after that plan, and he finally informed his antagonists, who became personal in criticism, that the name *podophyllin* had not originated with him, but that he had, in reality, accepted it at the suggestion (to use his words) of "Professor Wood, the author of the United States Dispensatory, who is no mean authority."* Mr. Merrell then continued his argument by saying:

The names of the resinous principles, or resinoids, should be made to terminate in *in*, after the analogy of the generic substance *resin* or *rosin*, and accordingly we should write *Podophyllin*, *Macrotin*, *Jalapin*, etc.—*Eclectic Medical Journal*, 1850.

This method of nomenclature was accepted by Hill (Cincinnati) and Keith (New York), as well as by other makers of Eclectic remedies of that period, who placed a limited line of "resinoids" upon the market. They accepted, without question, the nomenclature that Mr. Merrell had suggested, although, in Eclectic literature, some very acrimonious discussions appeared concerning the drugs to which the names were applied. As before remarked, when the precipitate, more or less resinous, obtained from *podophyllum peltatum*, finally demanded recognition in the United States Pharmacopœia, it came before the revisers of that work as an Eclectic drug, but under a name formulated by the editors of the United States Dispensatory, a fact overlooked by some persons antagonistic to Eclecticism, who opposed that name, thinking it an Eclectic term.

The substance under consideration was, as before stated, the first member in the list of Eclectic "resinoids," alkaloids, and concentrations to attain popularity. Through the influence of Professors King, Hill, Morrow, and other contributors to Eclectic literature, as well as by reports of practitioners who used it, "podophyllin" quickly assumed a position and importance seldom attained within so short a period by vegetable remedies. Its unquestioned efficacy as a cholagogue cathartic—in that day of cathartic supremacy established it in the practice of others as well as the Eclectic profession. Appearing in the heat of a celebrated controversy over the abuse of the mercurial prepara-

* See p. 27.

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tions then so extensively employed in Regular practice, it was hailed by Eclectics as a vegetable substitute for the mercurials, and was called by them the "Eclectic Calomel."*

Before its character was understood by the leaders in the Regular school of medicine, it became, under the name *podophyllin*, perhaps the most prominent of Eclectic drugs. Such conspicuity could not exist, however, with reference to a drug used so extensively in Eclecticism, without recurring introductions to members of the Regular school, and, in consequence, long before it was authoritatively recognized by any of their book-makers, it came into general repute with numbers of their general practitioners. Thus commercial "*Phodophyllin*" became a valued drug in general Regular practice, years before it received recognition either in the United States Pharmacopœia or Dispensatory. Hence it was that, when at last it was deemed advisable to give a position in the Pharmacopœia to this drug which had long been known to be of unquestioned value, it was found that Mr. Merrell's name, *Phodophyllin*, had become commercially and professionally established, at home and abroad.

Probably from ignorance of its record in Eclecticism, at least without recognition of that fact, the controversy over the name was now resuscitated, and was acrimoniously continued, when the drug knocked at the door of the U. S. P. As early, however, as 1851 (see *Am. Jour. Pharm.*, 1868, p. 1), the late Edward Parrish had recognized the advent of these products of Eclectic pharmacy (resinoids or concentrations), and deprecated their names. He said,

As well might the Ellis' Calisaya Extract be called *quinia*, as the impure resinoid substance precipitated from a tincture of May-apple, by the above process, *podophyllin*.

This argument, however, failed to impress either the makers or the consumers of "*podophyllin*," and even when the preparation became official in the United States Pharmacopœia (1860) as "*Resina Podophylli*," the title of the commercial drug remained unchanged. This fact was commented upon by Dr. Squibb in 1868, who considered it "unfortunate that those whose aim should be to give accuracy and precision to matters connected with medical science and art, should so commonly refuse to this substance its proper and correct name, and adhere to the inaccurate and otherwise objectionable name of 'Podophyllin.'" He severely criticised the names affixed to the class (the *Resinoids* or *Concentrations*), of which podophyllin was a member, stating that the termination *in* was

* These discussions, being confined to Eclectic publications, are unknown to most persons of the "Regular" school, for few have that literature at hand.

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applied to this and other substances by the Eclectics, through ignorance of its true nature. It is a resin proper,

he continued,

and there seems no good reason for miscalling it by an incorrect name which has attained an equivocal popularity, and the common pronunciation of which is so vulgar and inelegant.*

Notwithstanding this criticism, supported indirectly by the writings of other talented and enthusiastic leaders in Regular medicine and in pharmacy, who confined themselves to the official appellation and threw their influence in the direction of the name that was asserted as being the only scientific and proper one, little impression seems to have been made on either those who manufactured or who consumed the drug. The United States Pharmacopœia, in each subsequent revision, has made the name "*Resina Podophylli*" (first given to it by Professor King), official; the influence of the majority of instructors has been continuously added thereto. But to this day, in commerce, when the drug is specified, and usually when it is prescribed by physicians, the appellation is *Podophyllin*.

Had the advice of Dr. King been taken, the *definite* resins would alone have been called *resins*;† the *oleo-resins* would have been called *oleo-resins*, with names terminative in *in*; and the alkaloids would have been called alkaloids (names terminating with the syllable "*ine*," or "*ia*");‡ whilst dried extracts would have been called *extracts*, *dried*. But the care of Dr. King and his systematic co-laborers was not effectual in controlling either the nomenclature or the composition of the many incongruous substances that, in rapid succession, between 1847 and 1860, were, by manufacturers of plant preparations, thrown on the American drug market under the titles "Alkaloids" and "Resinoids."

Enlarged Use of the Termination *in*.—Closely following the commercial introduction of the "Resin of Podophyllum," under the condensed name "*Podophyllin*," and eleven years after King had estab-

* It has since been shown that podophyllin is not a resin, nor yet a simple substance. It carries more than one body, and is partly soluble in water.

† Substances thrown from alcoholic percolates by water. They were seldom, if ever, true resins, but no better nomenclature is even now possible.

‡ The tendency at that date, in both commerce and the profession, was toward single names, usually terminating with "*in*" or "*ia*," as applied to the energetic compounds obtained from drugs. The termination *ia* was applied to organic bases of alkaloids, of which *Morphia* and *Quinia* may be cited as examples. King, as was true of others at that date, thus used *ia* as an alkaloidal termination.

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lished its energetic cathartic nature, came, as already stated, the introduction of many other substances, some of similar resinous natures, others markedly different. Among the most typical of the resins, and once conspicuous by reason of the hope that it might carry the cathartic and other qualities of the crude drug from which it was evolved, was that derived from *Leptandra virginica*.^{*} This, as finally established and used by King, was a dried hydro-alcoholic extract, and by manufacturers was called *Leptandrin*. Concerning it, in reply to a question, Dr. King (1880) wrote as follows:

Cincinnati, Aug. 5th, 1880.

Prof. John H. Lloyd,

Dear Sir;

In reply to your request desiring me to give you a statement concerning the origin of the article designated by the term *Leptandrin*, I will observe that in the year 1860, I first prepared an extract from the *Leptandra virginica* root, by giving an alcoholic tincture, and an aqueous infusion, subsequently, these I evaporated separately to dryness, pulverized them and mixed them together. In the *Western Medical Reformer*, of April, 1866, published at Cincinnati, pages 175 to 178, will be found a communication relative to this subject, in which paper I also called attention to the resins of Blue Flag, Black Cohosh, *Podophyllum*, etc., as well as to preparations of several other medicinal agents. Previous to this communication these resins and preparations were unknown to pharmacists and physicians; and it was a year or two subsequently, before any pharmacist ventured to prepare them for the medical profession. But, I would remark here, that in 1866, in another journal, I had called attention to the resins above referred to, which, however, attracted but little notice. I know of no earlier publication concerning these remedies, and, as, in such matters, dates give priority, should such publication be found, my claims will become valueless. As to the ~~name~~ nomenclature given to these resins and dried extracts, it did not originate with me.

Yours Truly,

Dr. King

This facsimile is presented to show the copperplate beauty of Dr. King's handwriting.

^{*} Dr. King, its discoverer, subsequently demonstrated that this resin was practically inert. This, to him, was a deep disappointment.

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August 6, 1880.

Prof. John Uri Lloyd,

Dear Sir,—In reply to your request, desiring me to give you a statement concerning the origin of the article designated by the term *Leptandrin*, I will observe that in the year 1840 I first prepared an extract from the *Leptandra virginica* root, by forming an alcoholic tincture, and an aqueous infusion subsequently; these I evaporated separately to dryness, pulverized them and mixed them together. In the *Western Medical Reformer* of April, 1846, published at Cincinnati, pages 175 to 178, will be found a communication relative to the subject, in which paper I also called attention to the resins of Blue Flag, Black Cohosh, Podophyllum, etc., as well as to preparations of several medicinal agents. Previous to this communication these resins and preparations were unknown to pharmacists and physicians; and it was a year or so subsequently before any pharmacist ventured to prepare them for the medical profession. But I would remark here, that in 1844, in another journal, I had called attention to the resins above referred to, which, however, attracted but little notice. I know of no earlier publication concerning these remedies, but as in such matters dates give priority, should such publications be found, my claims will become valueless. As to the nomenclature given to these resins and dried extracts, it did not originate with me.

Yours truly,

John King, M. D.

Let us emphasize the manner in which Dr. King disclaims responsibility for the word *leptandrin* by repeating from his letter the sentence concerning the origin of the "*article designated by the term Leptandrin!*"

Note, also, his dignified criticism of the terminology employed, in the final sentence of the same communication:

As to the nomenclature given to these resins and dried extracts, *it did not originate with me.*

At that date Dr. Alexander Wilder was in the zenith of his mentality, and was deeply concerned in the reform movement in medicine. Like Dr. King, he felt the odium of the alkaloidal-resinoidal octopus that had so unexpectedly wrapped its tentacles about Eclecticism, and he too protested against the imposition. (See page 19.) From a letter to us, November 6, 1905, we extract as follows:

I used to plead against the (illogical) naming of the resins "podophyllin," "macrotin," "leptandrin." I was willing to use these terms as adjectives, but what little chemistry I possessed convinced me that they were neither principles, proximate principles, nor even concentrations.

Notwithstanding these facts, and notwithstanding the fact that an *in* compound would probably be confused with the termination *ine*, already established in alkaloidal chemistry (as in *morphine* and *quinine*), the cumbersome, technical terms of precise science gave way to commercial expediency (as is yet necessarily the case in similar

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problems), and the terse and attractive names* that appealed to both the professions and the trade, became firmly established.† Yet, although Professor John King came finally to tolerate the innovation, whenever a substance was, to his knowledge, simply a dried solid extract, whether aqueous, alcoholic, or hydro-alcoholic, he insisted on the proper designation. For example, note how, in the following articles, over half a century ago, he differentiated between the resinous substances *podophyllin* (resin), *iridin* (oleo-resin), and the dried, hydro-alcoholic extract of *xanthoxylum fraxineum*:

I know of no better sialagogue than a mixture composed of equal parts of *Podophyllin*, *Iridin*, and the dried hydro-alcoholic extract of *Xanthoxylum Fraxineum*; of which half-grain doses must be given and repeated every two or three hours. I recommend this as an official Eclectic formula for all cases where salivation is deemed necessary; also as an unrivaled alternative in many forms of chronic disease.—*Eclectic Medical Journal*, February, 1849.

Rapid now were the movements of the "resinoid, alkaloid" makers. Within a brief period, between 1850 and 1855, several manufacturers of medicine were rivaling each other in their efforts to establish both priority and superiority for their special makes of the respective resinoids, concentrations, and alkaloids.

Nor were the united efforts of King and others earnestly concerned in Eclectic therapy and reform medicine capable of preventing, or for a time, even, modifying the marvelous and too often unfounded claims made in behalf of the therapeutic virtues of the so-called active principles. A resinoid craze arose, similar to other professional distempers and fanaticisms, such as the American elixir craze of the early seventies, and similar fads that from time to time have risen to plague over-zealous enthusiasts.‡

* Formed by affixing the termination *in* to the abbreviated names of the plants; examples: *macrotis*, *macrotin*; *leptandra*, *leptandrin*; etc.

† Scientific terms are often too ponderous for either professional men or men in commerce to use in the affairs of life. Concentration, compactness, easy movement is essential to success of a title. Even the professional term *Ipecacuhana* became of necessity corrupted into *Ipecac*.

‡ Let it not be understood that we would presume to condemn the efforts made by experienced, self-sacrificing, earnest men, who, with the object of bettering conditions, involve themselves in what will surely be referred to, in a future day, as heinous fallacies or grotesque fantasies. Their efforts show that they too well appreciate the fact that conditions about them need bettering. Nor would it be just to ourselves to permit any one to presume that we believe such fallacies are necessarily fruitless. Probably each comet that streaks the sky leaves a bit of dust that somewhere, some time, becomes useful. The injection of sulphuretted hydrogen, per rectum, as a cure for consumption, led men to question the infallibility of some authorities, who spoke "by authority," made so by position. The cruel vivisection methods of present investigation are leading men involved in other long-established barbarisms to abandon their systems of medication. Dr. Osler, as a heretic, had cause for his heresy, even though he outclasses some "Irregulars" in his questionings of old-time medicines and methods once considered the only scientifically "Regular." Even the blue-glass theorist led many physicians to think of sunlight as a remedial agent. The Rochester (New York)



WILLIAM TULLY, M. D.

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Having now briefly given a history of the discovery of the concentrations, and the application of the term *in* to the resin of podophyllum and similar substances, let us next consider the—

Introduction of the Commercial “Concentrated” Principles or Resinoids.—Professor King was a personal acquaintance, a correspondent, and an admirer of the talented Professor Tully, of Yale University. Immediately after discovering the resin of podophyllum, he communicated the process, together with his experience as regards its violent energy, to that exceptional authority, who, although an Allopathic physician, was both very liberal and very enthusiastic in his views concerning the ideals and efforts of the independent American reform investigators. Professor Tully called Dr. King's attention to the plant *macrotys*,* and in 1835 King obtained its resin (*macrotin* or *cimicifugin*), after his previous method of making resin of podophyllum. Soon thereafter, 1840, he made and recorded the production of the resinous principles of *iris versicolor*, *aletris*, and *leptandra*.† The last substance, although more of a resin than is resin of podophyllum, did not carry the therapeutic qualities of the drug, proving to be practically inert. For this reason it was subsequently replaced by the dried extract of *leptandra*, under the name *leptandrin*. The same was also true of the resin of *hydrastis*, a plant that contains an abundance of resin and was one of Dr. King's remedial favorites, but which failed to give an active, resinous product. These exceptions to the rule which had produced the energetic resins of *jalap*, *podophyllum*, and *macrotys* were exceedingly disappointing to the men who hoped to evolve a line of similar active principles from all plants. However, the various resinous, alkaloidal and extractive substances under the termination *in*, followed successively as commercial products, and within a few years Dr. King, as a means of intro-

State Hospital is now (1909) instituting a “sun room,” described by the *Rochester Democrat and Chronicle* as follows: “Extensive improvements are under way at the State Hospital which will add to this very large State institution for the insane a number of conveniences. A sun room is under construction adjoining the building in which some of the special cases are confined. At present these patients are confined within brick buildings not of the modern type. The new building will be fifty-three feet in length, twenty feet in width, and two stories in height. The roof will be of slate, but the sides will be of glass, allowing the rays of the sun to enter from the east and south. Galleries will be constructed, so that the patients will be able to get sun baths without being given undue liberty.”—*Dem. and Chron.*, July 22, 1909.

*Eclectic physicians have always used the term *macrotys* in preference to *cimicifuga*. (See Lloyd Brothers' Drug Treatise No. XIII, p. 3.) The name *macrotys* under Eaton's authority, and Rafinesque's precedent, had become established in early American botany. Eclectics do not believe in changing the name of a remedy every time a botanist alters the name of a plant for some reason, personal, fanciful, or discursively proper or improper. Hence in Eclectic literature, the name *macrotys* still has precedence.

†See Dr. King's letter, p. 15.

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ductory classification, very reluctantly referred to them under the blanket title "Concentrated Principles." This is shown, 1849, by the closing sentence in his article, titled "Important Remedies," as follows:

As the action of the *concentrated principles* of our remedies is now undergoing investigation, I would refer to the communication named in the commencement of this article* for a list of preparations worthy of immediate notice, and will mention several which I have made and used, as particularly deserving the confidence of physicians. Dried hydro-alcoholic extracts of *Baptisia tinctoria*, *Euphorbia*, *Ipecac*, *Hydrastis Canadensis*, *Phytolacca decandra*, *Cornus sericea*, *Rumex crispus*, and *Apocynum Cannabinum*.—*Eclectic Medical Journal*, 1849, p. 63.

Be it observed that these concentrated principles were by Dr. King called *dried hydro-alcoholic extracts*, and also that the list does not include any drug dominated by a poisonous or active resin or oleo-resin. Notwithstanding criticisms and unfounded statements to the contrary, it is seen that, at that early date, the very opening of the American Materia Medica, Dr. King had instituted an intelligent classification of these substances, (see page 13), that should not have been neglected.

Under his classification, no blanket title would have been necessary. Had it been adopted, the so-called alkaloids, concentrations, or resinoids, that plagued Eclectic pharmacy in succeeding years, would have been unknown.

But, as shown in the historical section of this Bulletin, the care of Dr. King was not effectual in controlling either the nomenclature or the composition of the many incongruous substances that, in rapid succession, were thrown upon the American drug market under the names *alkaloid* and *resinoid*. Nor was it possible to resist the marvelous claims made for their therapeutical virtues. Within a brief period several manufacturers of medicines were rivaling each other in their efforts to establish for their respective make of the "Resinoids," "Concentrations," and "Alkaloids" both priority and superiority.

In this turmoil Dr. King and other Eclectics were most unfortunately and unhappily embroiled, and that, too, not without reason, from the fact that Dr. King had introduced the resin of *podophyllum* and others similar. This, added to the fact that these popular "Eclectic Remedies" were making inroads on medicines from abroad,† led professional antagonists and those connected

* *Eclectic Medical Journal*, 1846, April, p. 165.

† This commercial phase of the problem must not be overlooked. Europe supplied jalap and resin of jalap (coming from Mexico to London, thence to America); calomel at that time was imported from England, as were Spanish flies through London. These and such as these were being rapidly displaced by the new remedies.

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with foreign drug affairs, together with men who did not care for fact or were not inclined to investigate, as well as those who believed that independent investigation should at all costs be prevented, to attempt to saddle upon King the whole heterogeneous mass of conglomerates grouped under the name "Concentrations," and thus to discredit him and suppress the "Reformers." As a result of this, men who did not read carefully or who were unacquainted with either King or his ideals, or were prejudiced beyond reason, were led to blame him for what others, over whom he had no control, and whose methods were directly opposed to his, were doing. A bitter ending it was to the hopeful dream of that self-sacrificing philanthropist and scholar!

Concerning this phase of the subject, Dr. Alexander Wilder wrote us as follows:

So far as the exploiting of "Concentrated Remedies" and the whole array of these peculiar extracts is concerned, the endeavor to throw a responsibility on Dr. John King, beyond the three preparations known as Podophyllin, Macrotin, or Irisin, is without warrant. Dr. King was too careful to go faster in such matters than he felt that his footing would be safe. He was simply an expositor of the few substances that he had discovered, and had neither disposition nor interest in foisting upon the confidence of his medical brethren, or the public generally, a large number of the "new remedies" that he had neither discovered nor tested.

Can the dilemma of Dr. King be more forcibly emphasized than by quoting his own words of protest against the imposition of the so-called Eclectic alkaloids, resinoids, and concentrations, written in the very height of the enthusiasm that had arisen in the Eclectic school in their behalf?

Concentrated medicines: I have been accused of unjustly opposing these remedies, and discrediting them to the profession. I confess to having opposed the principle that all the agents of our indigenous materia medica would yield their virtues in the form of a *powder*, and I still continue in the same belief.—*Dr. John King, editorial in the Eclectic Medical Journal, Vol. XXI, p. 96, 1862.*

To this may aptly be added the far-reaching paragraphs of Dr. King in the Preface (pages 9 and 11) to the American Dispensatory, 1870:

The only point to be regretted is that many worthless so-called "concentrated preparations" have been presented to the profession, purporting to be those of American Medical Reformers, and which have been gotten up by either ignorant or unprincipled parties, for the *sole* purpose of realizing wealth. The failure of these worthless articles to effect beneficial results in the treatment of disease might lead many to reject even those of value; which consideration alone has elicited the above remarks. . . . It is well known that many of these preparations, from which the manufacturers have, in some in-

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stances, already realized immense wealth, are valueless, or nearly so, while others again are downright impositions; for what chemist can believe in the reduction, for instance, of an active medicinal oil to the condition of a powder, without having its medical power more or less destroyed by the process for such reduction, even were the operation a mere trituration of the oil with some absorbent powder?

COMMERCIAL HISTORY OF CONCENTRATED REMEDIES.

Dr. Isaac Jacobs, of Bangor, Maine, was, so far as I can determine, the first to attempt the obtaining of vegetable remedies in concentrated form, becoming widely celebrated for his peculiar methods as early as 1835, the year King discovered resin of podophyllum. He expended many hundred dollars in perfecting processes, and in making machinery for expressing and concentrating juices from plants. He contended that many medicinal plants lose their remedial virtue by the application of artificial heat, whereas sun evaporation afforded a superior product. He accepted that his success as a practitioner was due largely to these concentrated medicines.—*Condensed from a letter of Dr. Alex. Wilder, Dec. 1, 1902.*

These "Concentrations" of Dr. Jacobs, which antedated the commercial lists by sixteen years, were not the remedies sold in powdered form after Dr. King's discovery of the resin podophyllum, but compressed *sun-dried extracts*, or pillular extracts. They, however, directly anticipated the trade alkaloids and concentrations, of which the true resins were legitimate forerunners.

In 1847, (twelve years after its discovery by King), Mr. Wm. S. Merrell (see pages 24-30) made the first resin of podophyllum for commerce, and to him is due the credit of its first preparation on a manufacturing scale and its commercial introduction. This is irrevocably established, not alone from the fact that Dr. King gave to us, personally, the detailed circumstances,* but because a record was made of the incident by King, in the first edition (1852), of the *American Dispensatory*, as follows:

The credit of first preparing podophyllin, and other concentrated preparations, for the use of the profession generally, it being part of his vocation, belongs to Mr. Wm. S. Merrell, druggist and chemist, of Cincinnati, who first manufactured it, in June, 1847; since which time it has become an indispensable and highly important *Eclectic* remedy; and is likewise used by Allopaths and Homœopaths, and by the former, in all instances where they have employed it, it is preferable to mercurials.—Dr. King, in *Eclectic Dispensatory*, 1852, p. 314.

The first concentrations introduced to commerce were the resins

*Dr. King related to me the incident as follows: "I went into the pharmacy of Wm. S. Merrell one day after lecturing to my class, and Mr. Merrell brought to me a small amount of the powdered resin of podophyllum, saying, 'I have made this according to the process you gave me; how does it compare with that made by you?' 'Exactly like that I made,' was my reply. Mr. Merrell then gave samples to physicians, and introduced it to the trade."

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of podophyllum, macrotys, and leptandra, and for some time these comprised the entire list.

Four years after Mr. Merrell (1847) introduced the resin of podophyllum to commerce, and after the typical "resinoids" had become well known to Western Eclectics, Dr. Wm. Elmer, of Auburn, New York (1851), went to Syracuse, N. Y., and formed a partnership with Dr. S. H. Potter, who had just established the "Syracuse Medical College." There he associated with himself Dr. John T. Goodin, of Utica, New York, Dr. Dwight Russell, Dr. Sears Crosby, and Dr. Alexander Wilder, the project being, in Dr. Wilder's words (private letter):

"To open the American College of Pharmacy, which, however, was merely a pretext for an alkaloid, resinoid, concentration, business scheme."

Wilder further states:

This "College of Pharmacy" went on some months manufacturing podophyllin, macrotin, and leptandrin until midsummer, when it collapsed.

It began to manufacture in April, 1851, and sold out in the following summer to Hosea Winchester, 108 John Street, who moved to New York and continued the business as a retail drug store. Dr. Elmer, it seems, though the founder, took no active part in the college. On some "unsatisfactory pretext," (Wilder) he withdrew in early spring, and removed to New York, where, in Bleeker Street, he formed a partnership with Mr. B. Keith, of New Hampshire, under the title Keith and Elmer, the object being to engage in the manufacture of Concentrated Remedies,* which, according to Wilder, were simply *dried extracts*. Wilder writes:

The products appear to have been made in one uniform manner, by tincturing the drug with alcohol, and drying the product.†

The new firm now employed as chemist a man named *Grover Coe*,‡ who continued with the firm of B. Keith after Elmer withdrew. About the close of the Civil War the firm moved to Liberty Street, but in the meantime, Grover Coe, like Dr. Elmer, had vanished, leaving no record other than his book.§

Other medicine manufacturers now perceived in "Alkaloids and

* This data is from a personal letter from Dr. Wilder. See biographical sketch. This firm, (Keith and Elmer), was the Eastern pioneer in the manufacture and distribution of the class of substances listed as "Concentrated Remedies." "The business is now (1909) conducted by a son of B. Keith, 31 Park Row, New York City." In this connection we will add, this Keith family is one of the old New England founders, active in early colonial days.

† Such extracts are often oleo-resinous, and will not dry without the aid of an absorbing powder. This explains the presence of starch and other products found in them by Prof. Wayne. (See p. 35.)

‡ Dr. Wilder tells us he was not a physician, although he used the title M. D., and was referred to in print as Dr. Grover Coe.

§ Biographical note, opposite portrait of Grover Coe.

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Concentrations" a new field. Dr. Hosea Winchester, of Missouri, opened business on John Street, having taken in Dr. Elmer, of Syracuse (see page 21). In the West, several parties began successively the manufacture of the "Resinoids," "Alkaloids," and "Concentrations," the foundation for all these substances being the resins and oleo-resins discovered by Dr. King, who published his processes, but, being a physician and scientist, and having no connection with any business concern (see pp. 8-10), never made any products for commerce.

Soon active competition uprose. Keith became prominent as the Eastern "Alkaloid, Resinoid, Concentration" manufacturer, and was attacked by the Western interests. His friends, in turn, were not less aggressive in his behalf. Thus came many lines of products from many sources, all being classed either as alkaloids, resins, resinoids, oleo-resins, or as concentrations. Heralded were they as very concentrated remedies, capable, in small amount, of producing marvelous therapeutic results. But, in substance, though bearing the same names, they were as different from one another as were the different makers' labels. Their common origin, based upon Dr. King's discoveries, (see pp. 7-15), naturally drew Eclectics into the controversy, a condition of affairs strengthened by the fact that Grover Coe was Secretary (1857) of the National Eclectic Medical Association, and that Dr. R. S. Newton, (at the start one of Keith's adherents), as well as others prominent in their advocacy of Keith, were aggressive Eclectics. However, according to Dr. Wilder, Keith soon withdrew from all Eclectic and Thomsonian affiliations and complications, his remedies being used mostly by the dominant school, which school after a time (and the same is yet true), consumed most of the products. This reversal of conditions was owing, largely, to the crusade of King, Scudder, and others against heroic drugs, poisonous dosage, and especially the alkaloidal medication theories, which led Eclectics to abandon the use of most items of the entire class. Notwithstanding these facts, the "odium" of it all, and the imposition of it all, still clung to Eclecticism.

MANUFACTURERS OF THAT DATE.

The principal manufacturing firms of these substances, between 1851 and 1859, are recorded as follows:*

* Some of these firms prepared concentrations, such as the true resins, etc., for a greater or less period before the list was advertised as a class. Others did not publish a list until some time following the use of the typical resins. For example, although Mr. Wm. S. Merrell introduced the first specimens to the trade, Keith was perhaps the first to make them a commercial feature. We include quotations from the text of some of the prices current.

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F. D. Hill & Co., Cincinnati, 1852. "From a continued series of experiments, we have no hesitancy in saying that by the improvements made in the mode of preparing the following list of *Concentrated Medicines*, we can offer these preparations to the public, containing all the medical virtues possible to be obtained from the different native substances, and of a finer quality than ever before manufactured."

Lists Podophyllin, Leptandrin, Macrotin, Myricin, Sanguinarin, Hydrastin. "This article, (Hydrastin), introduced by us (in 1851), is one of the finest extant among Botanic Medicines. In fact, it is the QUININE OF AMERICA." To this list was added, in 1856, Caulophyllin, Cornin, Geranin, and Prunin.

American Chemical Institute, B. Keith & Co., 1854. "*The object of this Institute is, to prepare the active principles of indigenous and foreign medical plants.*" "One great and principal objection to the use of many vegetable remedies has been that it required such large doses of the article in a crude state, to accomplish the desired effect, that the bulk alone would defeat the entire purpose for which the remedy was administered." Then follows a list of thirty-one "*Concentrations*," the special claim being that they were *in the form of powders*.

Union Drug Store, Vine and Pearl Sts., (W. S. Merrell & Co.), Cincinnati, 1854. "The Resinoid and other Active Principles of our native plants are of a quality unsurpassed, if not unequaled, by others who have engaged in their manufacture."

Wm. H. Baker & Co., St. Louis, 1854. "*New Concentrated Medicines.*" "Their uses, doses, etc., together with a manual on Resinoids, will be mailed free to those who desire it."

T. C. Thorpe,* Cincinnati, (Court and Plum Streets), 1854. "Manufactures and keeps constantly on hand all the Concentrated Agents peculiar to the Eclectic Practice."

Dr. I. Wilson, Cincinnati, 1854, "dealer in Essential Oils, Gums, Extracts, and CONCENTRATED PREPARATIONS." (No list published.)

Tilden & Co., New York, 1856. "Concentrated Preparations, Resinoids, or Oleo-Resins. We add to our own list some of the most important articles of this class of preparations, and shall extend the number as fast as we are able to do so, to embrace all that may be deemed of importance to the practitioners."

Lists Asclepin, Cimicifugin, or Macrotin, Cypripedin, Geranin, Hydrastin, Leptandrin, Podophyllin, Sanguinarin, Senecin, Scutellarin, Stillingin, Xanthoxylin. [In 1859, this list had increased to forty-eight items.—L.]

Geo. M. Dixon, Cincinnati, 1856. "We beg leave to call the special attention of the medical profession to our extensive and complete assortment of CONCENTRATED MEDICINES, which are warranted to be as represented, pure and fresh."

H. H. Hill & Co., (successors to F. D. Hill & Co.), Cincinnati, 1862. "This house was one of the first to introduce the NEW CONCENTRATED REMEDIES. We offer a full assortment of our own articles."

T. L. A. Greve, Cincinnati, 1862. "I keep on hand a full supply of 'CONCENTRATED MEDICINES.'" (No list at that date.)

* (Afterward, H. M. Merrell & Co. Now Lloyd Brothers.)

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These firms listed their products under titles, such as Alkaloids, Resinoids, Resins, and Concentrated Medicines, some even attempting to group or classify the various substances. But, as a rule, no attempt was made to distinguish between useful agents and those questionable, or between the unworthy and those entitled to a systematic position, by legitimate scientific nomenclature. Through journals and circular prints the physicians of America were now flooded with literature more or less extravagant concerning the marvelous alkaloidal and resinoidal remedies, the outcome being that the few worthy members of the group were soon overshadowed by others either unworthy of the name or entitled to no legitimate home anywhere. A heterogeneous collection was that which was finally included in the commercial lists of resins, resinoids, alkaloids, and concentrations, a list that stands yet in current catalogues. But, as has been said, the odium of it all rested, unfortunately, on the Eclectic school of medicine, by reason of the origin of the first of these products, the Resin of Podophyllum, and a few other worthy members introduced by Dr. King, as well as from the fact that many over-enthusiastic Eclectic physicians had been entrapped in the craze.

After the method of American business rivals of that date, the foregoing manufacturers became bitterly antagonistic, and too often were viciously personal. Uncertain products, illogical processes, extravagant claims concerning the "Concentrations and Alkaloids" prevailed to such an extent as to place all who made them on the defensive. The legitimate use, as well as the misuse of the resinoids, crept gradually into print. Outsiders became involved, antagonistically and otherwise, friends were arrayed against each other, and at last the turmoil centered upon and came near disrupting the Eclectic School of Medicine. In it all, as has been said, very different substances masqueraded under the same name in the various published lists. The differences, and the reasons for the differences, may best be explained by a consideration of their position in pharmacy, and the problems that confronted the overly enthusiastic manufacturers.

DISCREDITING THE ECLECTIC ALKALOIDAL, REISINOIDAL CONCENTRATIONS.

In the article titled "Podophyllin and Macrotin," *Eclectic Medical Journal*, Cincinnati, January, 1849, Mr. Wm. S. Merrell reviewed the articles of Hodgson (1832) and Lewis (1847), who had assayed the root of mayapple.* Mr. Merrell also gave his own method of making

*See page 7.



Very Respectfully
Yours &c.
Groner Coe

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the resin of podophyllum, which he had named podophyllin, a name considered proper by himself and others high in authority.

In that article, which, excepting the contributions of Dr. King, was the first paper that seriously considered the pharmacy of these substances, Mr. Merrell announced that the authority for the said name, for giving which, as already stated, (pp. 11-13), he had been severely criticised, was the author of the United States Dispensatory (p. 27).

Following this, (February, 1849, pp. 66 to 68), Dr. John King, in the same journal, gave his part in the record, citing his method, as used in 1835:

In the fall of the year 1835, I produced for the first time some resin of Podophyllum, Macrotys, Iris, and Aletris, also the dried Hydro-alcoholic extracts of Leptandra and Hydrastis. In obtaining the resin of Podophyllum, I made a saturated tincture of the root, which was placed into an equal quantity of water, and the alcohol distilled off; the resin remained at the bottom of the vessel, and had the appearance of a burnt substance, which led me to imagine that it had probably become injured by the mode adopted for its collection.

As the action of the concentrated principles of our remedies is now undergoing investigation, I would refer to my communication named in the commencement of this, for a list of articles worthy of immediate notice, and will mention several which I have made and used as particularly deserving the confidence of physicians: dried hydro-alcoholic extracts of Baptisia Tinctoria, Euphorbia, Ipecac, Hydrastis Can., Phytolacca Dec., Cornus Sericea, Rumex crispus, and Apocynum Cannabinum.—*Eclectic Medical Journal*, 1849, pp. 66 and 68.

In August, 1849, Dr. S. H. Chase contributed an article commending Leptandrin, to which the editor appended a note, as follows:

We think the value of Leptandrin in dysentery has been thoroughly proved by the experience of the profession in Cincinnati. As a cholagogue remedy of very little purgative power, well calculated to change the morbid diathesis, it is entitled to a high rank.—*Eclectic Medical Journal*, 1849, p. 394.

In October, 1851, the *New England Medical and Surgical Journal*, in an editorial by Calvin Newton, M. D., answered the "question frequently asked," and wrote as follows concerning "the comparative efficacy and value of the concentrated preparations of medicines:"

Which have of late been introduced to the notice of the profession. In answer to such inquiries, we will here say, that we have given several of these preparations a pretty fair trial, and some of them we now hold in high estimation, particularly the leptandrin, podophyllin, and the macrotin.

Came now a voluminous flow of questionings concerning the new remedies, their pharmacy, for which extravagant claims were too often made, and their uses, which involved all concerned in the work, be they conservative or otherwise.

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In 1850, *E. M. Journal*, July, pp. 297-305, Mr. Wm. S. Merrell contributed another voluminous article, titled, "Eclectic Pharmacy." In it he concedes to Dr. King priority in discovering the resins under discussion.

Justice requires me to state that Dr. John King, now Professor in the Eclectic Medical Institute at Memphis, had previously obtained several of these medicinal principles in a form somewhat less refined, and had successfully employed them in his practice, and had published some notices of them in the *Medical Performer*. But these facts had attracted but little notice, and were wholly unknown to me till after several of my articles had acquired a considerable notoriety.

Whilst thus granting credit of discovery and of therapeutical use, Mr. Merrell, very truly and very properly, claims the credit of introducing the products in commerce. His paragraph on the subject may be repeated:

It is often asked with respect to Podophyllin, Leptandrin, and other analogous preparations, am I the discoverer of these? I answer, I am so, in the same sense that Fulton invented the steamboat and Morse the electric telegraph. The power of steam and its application to machinery was known before the time of Fulton, and it had even been applied to the propelling of a boat; but he carried these inventions *one step* further and first made them of practical utility in navigation.

The substances mentioned were all prepared after the process of making resin of podophyllum, the process being given as follows:

The process of procuring these is in theory very simple. It is, in general, to obtain a saturated alcoholic tincture of the root. To this add a large quantity of water, and distill off the alcohol. The watery menstruum holds in solution the gum, mucilage, extractive and most of the coloring matter, while the resinoid substance subsides, and is collected, washed, and dried. Still the process requires in many points no little skill and pharmaceutical experience for its success.

Yet the precipitates were not, all of them, resins proper, a fact that Mr. Merrell comments on as follows:

Like the pure resins, they are neutral in their chemical character, *i. e.*, neither alkaline nor acid, so that they are not disposed to combine directly either with acids or alkalies, except with the latter in the same manner as oils do, forming saponaceous compounds. They are, like resins, softened by heat, and when cold and dry, (unless combined with an oil, as many are), break with a vitreous fracture. Still they are not properly resins, for they are not perfectly liquefied by heat alone, nor are they fully soluble in essential oils, as the pure resins are.

For these reasons, Mr. Merrell introduced the name *resinoid*, claim-

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ing the word resinoid (resembling resins) to be an appropriate class-title. His words may be reproduced, as follows:

The most important class of these new agents is the Resinoids. We call them Resinoids; that is, as the word imports, "resembling resins."

In detail, Mr. Merrell (see p. 11) defends the names applied to the substances introduced, citing, as typical among the *in* terminations, the resins discovered by King, viz.: The resins of Podophyllum and Macrotys, to which Mr. Merrell adds Jalapin as a proper title for resin of jalap.

The names by which I have designated these resinoids is found fault with. Some contend that they should be denominated the Resin of Podophyllum, of Macrotys, or Iris, etc., while others claim for them no higher appellation than that of extracts, but both denying their right to the termination of *in* or *me*. Well, what is a name but an abbreviation to avoid the prolixity of a description of that which we wish to designate?

In records of abstract science it may be well enough to designate a thing by a description of its character, but when that thing becomes one of commerce and daily use, convenience requires that it be indicated by a single word, or at least, by the fewest practicable. Now I claim to have as good a right to give names to things as any one else, especially if they are my own offspring. But I have not acted without authority. Professor Wood, author of the U. S. Dispensatory, who is no mean authority, speaking of the bitter substance obtained from the root of the Podophyllum by Wm. Hodgson, jun., says: "Should this be found to be the purgative principle of the plant." (for this was not then ascertained, and indeed as obtained by Mr. H. its purgative property was nearly destroyed), it would be entitled to the name of *Podophyllin*." Turner, in his Elements of Chemistry, mentions many articles perfectly analogous to these which he designates by the termination *ine*, added to the generic names of the articles from which they are obtained, as Haematoxyline, Gentianine, Populine, Liriodendrine, etc.* For the sake of perspicuity, I propose this as the mode, in part, of naming the proximate principles of vegetables, viz.: that the names of the alkaloids uniformly terminate in *a*, after the analogy of the alkalies and alkaline earths, soda, potassa, magnesia, etc. Thus we should have Quinia, Morphia, Strichnia, Veratria, etc. But that the names of the resinous principles or resinoids should be made to terminate in *in*, after the analogy of the generic substance resin or rosin, and accordingly we should write Podophyllin, Macrotin, Jalapin, etc. This rule I have adopted in naming the new medicinal principles which had not before received a settled designation.—*Eclectic Medical Journal*, 1850, p. 299.

In order that a list of the articles and prices Mr. Merrell felt justified in quoting at that date may be preserved, we reproduce from the *Eclectic Medical Journal*, September, 1856, his advertisement, together with a few well advised comments concerning same:

CLASS I. POWDERED RESINOIDS. They are mostly of a *resinoid* character, in form of a powder, more or less colored, and generally Amorphous. . . .

*With respect to the final *e* in these names, good authorities differ, some adding, and others omitting it.

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Eight years ago we introduced the first three of these to the notice of the Profession, and many of them are now regarded by a large class of Physicians as indispensable to a judicious practice.

Podophyllin,	(from <i>Mandrake</i>),	.....per oz.,	\$o 75
Leptandrin,	(from <i>Culver Root</i>),	.....	" 0 75
Macrotin, or			
Cimicifugin,	(from <i>Black Cohosh</i>),	.....	" 0 62
Baptisin,	(from <i>Wild Indigo</i>),	.....	" 1 00
Caulophylline,	(from <i>Blue Cohosh</i>),	.....	" 1 00
Cornine,	(from <i>Dogwood</i>),	.....	" 1 00
Corydaline,	(from <i>Turkey Pea</i>),	.....	" 4 00
Cypripedin,	(from <i>Ladies Slipper</i>),	.....	" 1 00
Dioscorein,	(from <i>Wild Yam</i>),	.....	" 2 00
Eryngine,	(from <i>Corn Snake Root</i>),	.....	" 1 00
Eupatorine,	(from <i>Boneset</i>),	.....	" 1 00
Geranine,	(from <i>Cranesbill</i>),	.....	" 0 62
Hydrastine,	(from <i>Goldenseal</i>),	Neutral	" 1 50
Hydrastin,	" " "	Resinoid and im-	
		pure Alkaloid combined,	" 0 62
Jalapin,	(from <i>Jalap Root</i>),	.....	" 1 00
Juglandin,	(from <i>Butternut Bark</i>),	.....	" 0 75
Lobeline,	(from <i>Lobelia Herb</i>),	.....	" 1 00
Myricin,	(from <i>Bayberry</i>),	.....	" 0 63
Phytolaccin,	(from <i>Garget or Poke</i>),	.....	" 1 00
Prunine,	(from <i>Wild Cherry</i>),	.....	" 0 75
Sanguinarin,	(from <i>Bloodroot</i>),	Resinoid	" 0 75
Sanguinarina,	" " "	Alkaloid	" 0 80
Scutellarine,	(from <i>Scullcap</i>),	.....	" 2 00
Senecionine,	(from <i>Life Root</i>),	.....	" 2 00
Trillin,	(from <i>Birth Root</i>),	.....	" 1 00
Xanthoxylin,	(from <i>Prickly Ash Bark</i>),	.....	" 1 00

A few of the above have as yet been but partially tested in practice, but from the favorable reports we receive of them, and from their sensible properties, we feel confident that they are continents of the medicinal virtues of the plants they represent.

We have obtained dry resinoid powders from several other roots, barks, and herbs, as the Gelsemium, Iris, Helonias, Hellenium, Rhus Glabra, Stillingia, etc., but these in powder do not appear to us to possess the full virtues of the plants that yield them, and we can not recommend them as eligible preparations. We therefore omit them in this class. We may probably yet succeed in obtaining several of them of a satisfactory quality, and shall then add them, and others which may be discovered, to the above list.

CLASS II.—SOFT RESINOIDS AND OLEO-RESINS, ETC.

These are the Resinoid and Oleo-Resinous substances which constitute or contain the Medicinal principles of the plants from which they are named. Most of them, like many of the first class, are precipitated by water from their alcoholic solutions, and are of nearly the same degree of medical power and purity. But they are soft or semi-fluid in their character, and can not be presented in the powdered form without decomposing, or greatly modi-

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fying those native combinations in which they exist, and in which we conceive they best represent the medical properties of their sources. We present them in form of soft extracts, or thick oils, put up in 1 oz. vials, as follows:

Apocynin,	(from <i>Dogsbane</i>),	.....per oz., \$o 75
Aletrin,	(from <i>Star Root</i>),	..... " o 75
Asclepidin,	(from <i>Pleurisy Root</i>),	..... " o 75
Eupurpurin,	(from <i>Queen of Meadows</i>),	.... " o 62
Helonin,	(from <i>Unicorn Root</i>),	..... " o 72
Iridin,	(from <i>Blue Flag</i>),	..... " o 62
Liatrin,	(from <i>Button Snake Root</i>),	... " o 75
Rhusin,	(from <i>Sumach</i>),	..... " o 62
Ptelein, Oil of Ptelea,	(from <i>Wafer Ash</i>),	..... " o 75
Oil of Lobelia,	(from <i>Lobelia Seed</i>),	..... " o 75
Oil of Capsicum,	(from <i>African Cayenne</i>),	.... " o 75
Oil of Male Fern,		..... " 1 00
Oil of Stillingia,		..... " 1 00
Oil of Xanthoxylum,	(from <i>Prickly Ash</i>),	..... " o 75

Mr. Merrell also calls attention (see preceding list) to the oleo-resins, which were afterwards by some persons called "soft resinoids," to distinguish them from the "dry resinoids."

Nearly allied to the resinoids are those medicinal principles which are extracted from certain vegetables by *sulphuric ether*, and are presented in the form of fixed oils. Of these I have prepared only those of Lobelia, Capsicum, and male fern. The first probably holds in solution the alkaloid Lobelina, and the second the resinoid Capsicin, but I have never made an analysis of them. These are powerful agents. The Oil of Lobelia is valuable in Tetanus and some other extreme cases, as it is easy to introduce enough upon the tongue to relax the whole system speedily, but it should not be used pure as a common emetic, as there is too much danger of producing local inflammation of the stomach, by the action of so concentrated a medicine.—*E. M. Journal*, 1850, pp. 302, 303.

This article proved the beginning of an acrimonious controversy over the new products which, as already shown, had suddenly sprung into commercial activity. Throughout the land inquiries had arisen concerning their composition and methods of production. Eclecticism, which, as a reform practice, had to this date been on the offensive, but which yet had been wisely ignored by the "Allopaths," known also as the "Regular School," could no longer be neglected. It was now artfully, but yet discreetly, attacked in its most vulnerable point, viz., the alkaloidal, resinoidal craze. One sentence in the article of Mr. Merrell was not taken kindly by the Faculty of the Philadelphia College of Pharmacy. It occurred in reference to fluid extracts then coming into "Regular" conspicuity, to-wit:

This mode of exhibiting medicines is now the *hobby* of the Philadelphia College of Pharmacy.—*Eclectic Medical Journal*, 1850, pp. 297-298, 303.

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The time being now opportune to attack the whole alkaloidal, resinoidal, concentration subject, which, as we have shown, was sadly vulnerable, Mr. Merrell's article was selected as the text. In the *American Journal of Pharmacy*, October, 1881, (pp. 329 to 335 inclusive), Professor Edward Parrish, than whom there was no abler pharmacist, attacked Mr. Merrell and all things relating to the new resinoids. Concerning the drugs yielding the resinoids, Professor Parrish extricates the "Regular" school from their use, as follows:

They are obtained from the roots of *Podophyllum peltatum*, *Cimicifuga racemosa*, *Sanguinaria Canadensis*, *Leptandra Virginica*, *Iris versicolor*, and certain other roots, which are little used by regular practitioners.

To this Mr. Merrell made no reply, and seemingly, as is usually the case in a personal attack, the article made no impression on either the manufacturers or the consumers of the products involved. But several of the newly introduced resins cited by Professor Parrish as Eclectic products could not be brushed aside by criticisms. They proved to be very energetic and very great favorites in all directions. Into such demand did they spring, as to take all the care their makers could devote to the laboratory. But the ultra enthusiasts wrecked the opportunities of the day. So marvelous were the qualities attributed to these products, as a class, that men skilled, as well as men unskilled, were led to start their indiscriminate manufacture, and in the craze the list of items was enlarged by leaps and bounds. The legitimate resinous precipitates were quickly crowded into a corner, whilst in quick succession lists of "concentration" this, and "concentration" that, appeared. In these all kinds of bodies figured, as though established both as concerns their pharmaceutic quality and therapeutic action. These lists embraced dried extracts, oleo-resins absorbed by magnesia or other inert substance and then powdered, alkaloids and alkaloidal salts of *hydrastis* and *sanguinaria*, more or less impure, a few legitimate resins, pure as well as depraved, and products made by precipitating solutions of sodium carbonate and alum, in contact with organic liquids which threw down colored precipitates of aluminum hydroxide, more or less flavored with the drug, etc., etc. These and other substances, under many labels, came as parasites to plague the school that had given to the worthy members of the class a position in medicine.

The legitimate pharmaceutical work of Mr. Merrell, and the professional care of Dr. King, were insufficient to control either the names or the products masquerading under the plant names, and within a brief period Eclecticism became saddled with an alkaloidal-resinoidal fad that bade fair to discredit the most earnest efforts of its disciples,

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to crush its usefulness, and to close its career. It was now apparent that either the alkaloidal-resinoidal craze in Eclecticism must be at once arrested (as well as the theory that to the poisonous constituents of plant remedies were due their therapeutic qualities), or the school must perish. This all men concerned in the ideals of the Reform School of American medicine now fully comprehended. To add to the dilemma came a new complication, for about this time the Thomsonians became involved in the craze, as may be shown by the following brief historical reference.

In 1849, E. S. McClellan & Co.* began in Cincinnati the manufacture of "podophyllin." They soon sold out to Drs. Hill, Crutcher & Co., (F. D. Hill, Jos. Crutcher, Jos. Brown), but again established themselves in business. Dr. Brown was a professor in the Physio-Medical College (Thomsonian), of Cincinnati. His make of concentrations was commended editorially, as follows, in the *Physio-Medical Recorder*, 1850, pp. 167-8, and also by contributors to that journal, who, for the time, forgot the principles of Thomson:

CONCENTRATED MEDICINES.—Two years ago the idea (could it have been conceived of) that the huge doses of medicine then given, by our practitioners generally, could and would be reduced to doses of from one to three, or even five grains, would have appeared as chimerical as the idea, twenty years ago, that one man could stand in the city of Boston and converse with his friend in New Orleans almost as readily as if they stood side by side. But time and experience have fully demonstrated the fact.

Those medicines, exhibited in almost Homeopathic doses, not less mildly, efficiently, and safely, than the crude articles from which they were prepared; and the smallness of the dose divests the reformed practice of everything that was cumbersome, inconvenient, and disagreeable, and renders it as acceptable to the patient as the Homeopathic practice, so far as regards the dose.

We can not but regard this improvement in our materia medica as the brightest feature in the great and glorious work of medical reform.

Our Allopathic friends have, for a long time, been engaged in the preparation of concentrated medicines, and their agents have done much, very much, toward rendering their practice acceptable and popular; but how different their articles from ours. They extract proximate principles, many of which are most deadly in their character. From extract from the poppy they extract their morphine, from the strychnos (nux vomica) they extract their strychnine, two grains of which will kill; from cinchona they extract their quinine, etc.

Now, our agents are reduced to a concentrated form without breaking up the relations existing between the proximate principles. For example, we reduce lobelia to so concentrated a form, that from three to five or ten drops upon loaf sugar, or dropped into water, are sufficient to produce emesis; still,

* For the history of this firm, and the bitterness of the controversy, see *Eclectic Medical Journal*, 1850, pp. 342 to 344, and p. 384. The firm afterward became the very worthy house, H. H. Hill & Co., Race and Fifth Streets, Cincinnati. They were long a factor in American plant products, but are out of business, with no direct successor.

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this article is not lobelina, one of the proximate principles of lobelia, and is as safe as lobelia herb or seed. Again, we reduce leptandra to so concentrated a form, that a dose of from one to three or five grains will produce catharsis, yet this is not leptandrin, one of the proximate principles of leptandra. And so on, with our other remedial agents.

Now, we do regard this process one of the most valuable improvements of these days of improvements, and we bid Drs. Hill, Crutcher & Co. God-speed in this good work!

With this great improvement in our materia medica, we feel more than ever inclined to the belief, that the Physio-Medical Practice will soon, very soon, become the most popular and successful practice of medicine. . . . In the meantime let practitioners beware of impositions, for it would mean that every fellow, who can raise three dimes, is embarking in the business of Concentrating Medicines, not so much with the view of improving the character of medicines, as to get the dimes. Some there are who have engaged in the business who are ignorant of the first principles of chemistry and pharmacy. —*Physo-Medical Recorder*, Vol. XVIII, 1850, pp. 167, 168.

Let us call attention to two features of this editorial.

In the one case it was said,

We can not but regard this improvement in our materia medica as the brightest feature in the great and glorious work of medical reform.

In the other direction, the readers were warned against fraud as follows:

In the meantime let practitioners beware of impositions, for it would mean that every fellow, who can raise three dimes, is embarking in the business of Concentrating Medicines, not so much with the view of improving the character of medicines, as to get the dimes. Some there are who have engaged in the business who are ignorant of the first principles of chemistry and pharmacy.

Thus the problem became more complicated, for now three schools in medicine, Thomsonian, Eclectic, and Allopathic, were acrimoniously involved, two of them (Eclectic and Thomsonian) being much perplexed and painfully implicated. The Homeopathic school happily escaped.

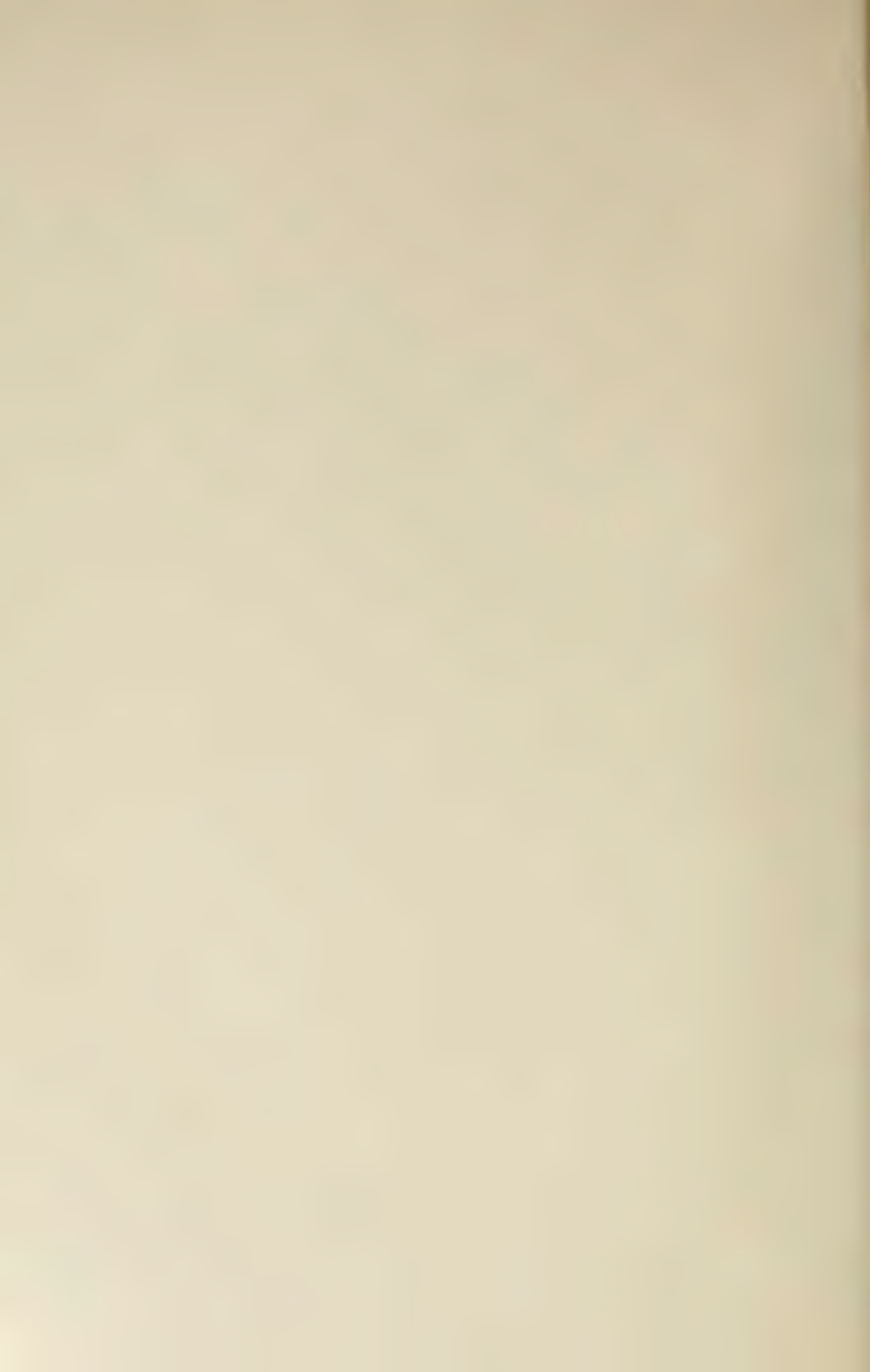
Throughout the year 1851, Professor E. S. McClellan carried articles on the subject in the Worcester (Mass.) *Journal of Medicine* (Eclectic). In September, 1851, Newton* and Kelley of that city began the manufacture of the various resinoids, alkaloids, etc. In 1852 appeared "The Eclectic Dispensatory," by King and Newton,† in which, however, only the legitimate resins and oleo-resins were given a position. Soon thereafter the American Chemical Institute of New York, B. Keith & Co., (see p. 21), entered the field, and

* Dr. Calvin Newton, not R. S. Newton.

† R. S. Newton, M. D.



ROBERT SAFFORD NEWTON, M. D.



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from that date to 1865, all physicians of America, through journals and circulars, were flooded with extravagant literature concerning the marvelous American alkaloidal and resinoidal remedies. The few worthy members of the group were soon overshadowed by those unworthy of the name, many of the intruders being entitled to no legitimate home anywhere. The odium of it all rested, by reason of the origin of the products, on the Eclectic school, although (Wilder) the American Chemical Institute of New York, and their agent, Grover Coe, the most conspicuous of all implicated in the publicity given these products, had (before this time) "united their interests with those of the dominant (Allopathic) school."

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Then it was that Professor John King, M. D., the discoverer of the first of the few worthy members of the class, wrote a crushing communication to the *Worcester Journal of Medicine*, June, 1855, pages 225-227, from which we extract as follows:

I now wish to call the attention of all classes of physicians to a most stupendous fraud which is being perpetrated upon them in relation to concentrated preparations, in which oils, oleo-resins, fluid extracts, etc., are triturated with finely powdered green leaves, or roots, or barks, perhaps of the crude articles of which they purport to be concentrations, as well as with rosin, carbonate of magnesia, etc. The resin of jalap, which can be obtained for two dollars a pound, is triturated with some inert agent, and sold for Jalapin at one dollar an ounce; and similar impositions. . . .

I regret that I am compelled to thus definitely allude to these matters, but there is no help for it—the cause of Eclecticism, of truth, of justice, demands it. Already are the old-school physicians manifesting an interest in our concentrated remedies, and if we permit such trash to be foisted on them as pure agents, they will believe that Eclecticism is indeed quackery and humbug, and it will require years to overcome the effects of such a disgraceful blow. We have sufficient to do in contending for the truth and justice of our cause, without warring against the imposition of those who either directly or indirectly claim to be with us.

I am sorry to say some individuals have been found so far regardless of the good of the cause, and their own honor, as to have made strenuous efforts to introduce these agents to the profession by all the means in their power.

I shall make no comments on the subject; it speaks for itself with the voice of a stentor, and every honorable man, every true Eclectic, can not but feel its voice enkindling within his whole soul the strongest feelings of censure and indignation toward those who would thus deceive the profession in a matter so intimately connected with the health and lives of their fellow creatures.—*John King, 1855.*

Simultaneously with this attack of Dr. King, Professor Edwin S. Wayne, a talented pharmacist of Cincinnati, chemist of the renowned Ohio Medical College, contributed a four-page paper to the *American*

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Journal of Pharmacy, exposing the alkaloids, resinoids, and concentrations made by the American Chemical Institute, of New York.

To use the words of Professor Wayne:

An association, styled the American Chemical Institute, has recently been established in the city of New York, ostensibly for the purpose of manufacturing the concentrated remedies (resinoids and oleo-resins) so extensively used at present by the physicians of the Eclectic school, in their purity and in a scientific manner.

* * * * *
I have examined in all eighteen specimens of the products of the American Chemical Institute, called resinoids and alkaloids, and have found but four specimens to be as represented; namely, jalapin, which is the true resin of jalap, powdered; podophyllin, the resin of the *Podophyllum peltatum*; Sanguinarin, from the *Sanguinaria Canadensis*; and Hydrastine* a crystallizable principle obtained from the *Hydrastis Canadensis*.—*Am. Jour. Pharm.*, 1855, p. 388.

Observe that Professor Wayne refers to the Eclectic members of the list as being proper products, when used "in their purity and in a scientific manner," but his analyses showed that the commercial so-called resinoids and alkaloids were, with few exceptions, mixtures of inorganic bodies, such as magnesia, and traces of vegetable extracts.

In this connection it may be stated that while Professor Wayne primarily attacked the sophisticated compounds, he also, in a logical way, opposed the dogma of a single principle being capable of paralleling a plant as a whole, or even being competent to carry the qualities of a natural textural structure obtained therefrom. He also took pains to *credit* the Eclectic school with the authoritative work it had accomplished, a refreshing innovation seldom found in the literature of the dominant school of those days. We quote as follows:

To the physicians of the Eclectic school much credit is due for their efforts in investigating our indigenous *materia medica*, and through their efforts many substances have been brought into use. These, though of much value, may again fall into disuse, simply because these resins have been said to be their active principle, without any further examination, and when tried, found to be wanting, the manufacturers having thrown away the pearl and retained only the shell.

Professor Wayne then goes on to state facts indisputable, which Dr. King had for twenty years so faithfully observed in his advice and methods, to wit:

These resins have been claimed as an advance in pharmacy. For my part I can not perceive it. The fact that plants contain a resin is not new; neither is the use of them medicinally. It is an easy method of obtaining a something, to be called the active principle; and in most instances they will be found to contain

*This is Berberine, see Bulletin No. 10. Lloyd Library publications, Drugs and Medicines of North America section, p. 66. Also Drugs and Medicines of North America, same page.

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but little, if any, of the medicinal value of the substances they may be obtained from, being far more inferior than a common extract, and much more expensive. . . .

And to the pharmacutists engaged in the manufacture of concentrated remedies, I would recommend that they make an analysis, and have the results tried, before they decide that the resin is the active principle, and cry "Eureka, I have found it!"

It is well now to summarize the results of the second analyses by Professor Wayne, which can be succinctly stated as follows (*College Journal*, 1856, pp. 23, 24, 25):

Lobelin.—Forty-four per cent insoluble in water and alcohol, more than half of which was magnesia.

Hydrastin.—Largely sodium chloride.

Veratrin.—Much potassium sulphate.

Senecin.—Much magnesia.

Stillingia.—Much magnesia.

Asclepin.—Much magnesia.

Gelsemin.—Much magnesia.

Cypripedin.—Much sodium chloride.

Prunin.—Much sodium chloride.

Stillingin.—Much magnesia.

Phytolaccin.—Much sodium chloride.

Myricin.—Much sodium chloride.

Helonin.—Much sodium chloride.

Podophyllin.—Much sodium chloride.

Alnuin.—Much ferrous sulphate.

Geranin.—Magnesia.

These attacks and criticisms all emanated from Cincinnati, the headquarters of Eclecticism, and were fathered both by Professor Wayne, the most conspicuous chemist in the Cincinnati Allopathic School, and by Dr. John King, the foremost authority in Eclecticism, as well as by other earnest Eclectics. Such criticisms could not well be neglected, consequently Grover Coe, of the American Chemical Institute, in the *Eclectic Medical Journal*, Cincinnati, February, 1856, pp. 92 to 96 inclusive, attacked Wayne *personally*. Because of the opportunity afforded, and the necessity for defense, it is to be regretted that, instead of the tirade of abuse, a statement of fact, and a few much needed suggestions concerning plant products were not made (see pages 37, 38). In the same journal, pages 123 to 126, under the title, "Macroton," Coe also attacks Dr. King in a like personal manner.

But in one direction, (while not accounting for the products found by Wayne), Dr. Coe strikes an as yet too long neglected fact concerning organic structures; namely, the important part played by combined *inorganics*. He aptly refers to the sulphur in certain plants, and had he developed this idea in the direction of other inorganics, in-

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stead of marring his paper by the personal abuse given Professor Wayne, he would have scored heavily in the controversy. His point, blemished though it be by personalities, may be reproduced as follows:

In this branch of study is included a thorough cognizance of the constituents of all organisms, and as far as our knowledge extends, the manner in which their constituents are combined to form the various organs of plants. It is necessary that the tyro should be taught that sulphur is an invariable constituent of certain plastic organic matter, and that unless this sulphur is contained therein, this matter can not really exist—can not be produced even by the wondrous fabricating power of the vegetable which forms it.

This fact happens to be entirely unknown to Mr. Wayne, or else, if he is cognizant of it, he hides it from the reader by his characteristic ambiguity of expression. That portion of his article, for instance, relating to *Veratrin*, presents a fair sample of the ignorance alluded to, or else of his obscurity of diction. This "analysis" indicates a ludicrous example of what stupid deduction can effect, when not guided by scientific learning. Not aware that all the plants of the hellebores, and likewise those of the mustard species, contain especially a large amount of sulphur.—DR. GROVER COE, *Eclectic Medical Journal*, 1856, p. 93.

In 1855 appeared the work of Grover Coe, "Positive Medical Agents," a pretentious book of 304 pages, devoted entirely to the marvelous claims of the alkaloids and resinoids manufactured by the American Chemical Institute. Simultaneously, the author contributed many articles of like import to current medical literature. The war of the alkaloids and resinoids was now at its height. In the *College Journal*, Cincinnati, 1856, (pp. 45-48), Professor Wayne again attacked the entire class of these substances, and also the principle of considering the resinous precipitates as plant representatives. He showed that resins and alkaloids may or may not be characteristic of the qualities of the drug from which they are derived, and again attacked in a logical way the dogma of a single principle paralleling the plant as a whole. In the same issue of the journal, (pp. 48, 49), came a reply from Mr. Merrell, disclaiming that Wayne's article referred to his products,* from which we quote, as follows:

So far as our establishment is concerned, or that of others of the more respectable manufacturers of these medicines, the above article has no application.

November, 1855, Dr. R. S. Newton, the editor of the *Eclectic Medical Journal*, Cincinnati, and co-editor with Dr. John King of the American Dispensatory, issued the following call for information:

Messrs. W. S. Merrell & Co., F. D. Hill & Co., and T. C. Thorp, Cincinnati, and B. Keith & Co., New York.

GENTS—As our readers are continually soliciting information from us on

* Professor Wayne's letter having been sent Mr. Merrell, in order that his reply might appear simultaneously with the attack.

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the subject of Organic Chemistry, or the Chemistry of Plants, and believing that you possess knowledge that would be of interest to the profession, we solicit from you a statement of the chemical principles of some of the leading articles which you prepare, such as Podophyllin, Leptandrin, Hydrastin, Jalapin, Gelsemin, Macrotin, Hyoscyamin, etc.

Very respectfully,

R. S. NEWTON, M. D.

To this only B. Keith & Co., the founders and owners of the American Chemical Institute, replied, (*Eclectic Medical Journal*, 1856, pp. 18, 19), defining their products as best they could, but in it all neglecting to refer to the charges of Wayne and King concerning the great amount of foreign bodies found in their products.* From the article we select as follows:

Many of the articles do not contain all of the active principles of the plant from which they are derived. For instance, the *jalapin*, as it is generally prepared, is a resinoid, although the jalap plant contains three principles; viz., a resinoid, a neutral principle, and an alkaloid principle. . . . The neutral and alkaloid principles do not contain the irritating properties that are to be found in the resinoid. . . . By the term neutral principle, we designate a preparation which we have devoted a considerable time to perfect. There are a number of plants which possess the active alkaloid in considerable quantity, but so inseparably associated with the extractive and coloring matter of the plant, that so far we have been unable to separate them. We have almost exhausted the resources of chemistry in the endeavor to separate and to purify the alkaloids of these plants, but without avail. For the present, we put up these alkaloids in their instinct combinations with the extractive and coloring matters under the general designation of *alkaloid principles*. The latter two matters, however, must exist in very small quantities, if we are to judge from the great activity displayed by the entire preparation as we put it up. . . . By the designation of *alkaloid*, we mean that principle which has been recognized by chemists as susceptible of combination with acids to form salts. It is undoubtedly true that some of the most active preparations of the vegetable kingdom reside in these alkaloids, but by the expression we would not by any means assert that all the active principles of the plant reside in the alkaloids, for it will be directly seen that the resinoids and resins possess especial active properties.

Under the designation *resinoid*, we have put up those principles which are insoluble in water. Here we have, combined with a very active principle of the plant, the wax and the fat. The latter, however, exists in small quantity, if we are to derive our conclusion from the activity of the preparation.

By the term *resin*, we mean those principles which are insoluble in water. The effects of resins, it is perceived, are entirely different from those of resinoids, the alkaloid principles, or the alkaloids proper.

Then follows Keith's certified list, in which, by means of such

* Let us repeat that in this direction was lost a mighty opportunity. The microscope and the telescope of therapeutic inquiry has been too long and too exclusively turned on the *organic* side of plant life. The part that *inorganics* play in molecular structures is in our opinion very important and sadly neglected by investigators. In our opinion, the structural influence of the mineral and earthy bodies is yet to be shown of importance in many directions where chemists are hopelessly puzzled, but yet are in countless repetition excluding the *inorganics*.

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terms as rd., res., etc., an attempt is made to establish their several constituents:*

LIST OF ARTICLES.

EXPLANATION.—rd., resinoid; res., resin; n. p., neutral principle; alk. p., alkaloid principle; alk., alkaloid.

Powders.	Obtained From.
Alnui, res., rd., n. p.	Alnus Serrulata.
Apocynin, rd., res., n. p.	Apocynum Androsaem.
Asclepin, rd., n. p.	Asclepias Tuberosa.
Caulophyllin, n. p.	Caulophyllum Thalic.
Cornin, rd., n. p.	Cornus Florida.
Cypripedin, rd., n. p.	Cypripedium Pubes.
Chelonin, n. p.	Chelone Glabra.
Eupatorin, rd., n. p., alk.	Eupatorium purpur.
(From Eupatorium purpureum.)	
Eupatorim, rd., n. p., alk.	Eupatorium Perfolia.
(From Eupatorium perfoliatum.)	
Gelsemin, rd., res., n. p., alk.	Gelsemium Semper.
Geranin, rd. and tannin.	Geranium Mac.
Helonin, n. p.	Helonias, Dioica.
Hydrastin, rd., res., n. p., alk.	Hydrastis Canadensis.
Hyoscyamin, rd., res., alk.	Hyoscyamus Niger.
Irisin, rd., n. p., alk. p.	Iris Versicolor.
Jalapin, rd.	Ipomœa Jalapa.
Leptandrin, rd., res., n. p., alk.	Leptandra Virgin.
Lobelin, rd., n. p., alk.	Lobelia Inflata.
Lupulin, res., rd., alk. p.	Humulus Lupulus.
Macrotin, rd., n. p., alk. p.	Macrotys Racemosa.
Myricin, rd. and tannin.	Myrica Cerifera.
Prunin, rd., n. p., alk. p.	Prunus Virginiana.
Podophyllin, rd., n. p., alk. p.	Podophyllum Peltatum.
Phytolaccin, rd., n. p.	Phytolacca Decandra.
Rhusin, rd., res.	Rhus Glabra.
Rumin, rd., n. p.	Rumex Crispus.
Sanguinarin, rd., n. p., alk.	Sanguinaria canad.
Scutellarin, rd., res., n. p.	Scutellaria Laterifolia.
Senecin, rd., n. p.	Senecio Gracillis.
Stillingin, oil, rd., n. p., alk. p.	Stillingia Sylvatica.
Veratrin, res., rd., n. p., alk.	Veratrum Viride.
Viburnin, rd., res., alk.	Viburnum Opulus.
Xanthoxylin, rd., n. p.	Xanthoxylum Fraxin.

From this date the controversy became vicious and personal, Eclectic and other medical literature being burdened with bitter discussions. Manufacturers of these products increased in number, and

* This list is of further interest in that it is the most complete of the lists of alkaloids, etc., issued to that date. For historical completeness, it is inserted, *verbatim*.

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in a spirit of rivalry indiscreetly expanded their lists until the number of items included among the concentrations far exceeded reason, if proximate plant constituents, as intended by their originators, formed the basis. Under such influences the crusade of disfavor continued with repeated attacks, chiefly now from within the school to which they owed their origin. Of such, the following, from the conspicuous Eclectic authority, Professor John M. Scudder, M. D., is an example :

In 1855 much of Eclectic medicine was an unmitigated humbug. That was the day of the so-called concentrated medicines, and anything having a termination in "in" was lauded to the skies. It was claimed that these resinoids were the active principles of the plants, and as they would replace the old drugging with crude remedies and teas, they must prove a great boon. But they did not give success, and finally, after trying them for awhile, the practitioner would go back to the crude articles and old syrups and teas with success, or he would settle down to podophyllin catharsis and quinine.—Editorial by John M. Scudder, M. D., *Eclectic Medical Journal*, March, 1870.

To this may be added such expressions as the following, from a series of articles titled "*Pharmaceutical Chemistry*," 1875, in which the present writer thus refers to the substances under discussion :

I have commenced this series of articles with the opinion that unless we go over and examine into the peculiarities of the complex elementary bodies that constitute medicinally the bone and sinew of our crude plants, many of us will in no wise be in circumstances either to understand clearly the nature of the pharmaceuticals themselves, as they are, or the nature of the pharmaceuticals as they should be. . . . Again I desire particularly not to have the term alkaloid, as used by me, confounded and connected with a certain line of stuffs called indiscriminately by the several names of resinoids, concentrated medicines, and alkaloids, for never, under any circumstances, do I even refer to these nostrums as medicines.—John Uri Lloyd, *Eclectic Medical Journal*, May, 1875.

Finally, with a few exceptions, such as the Resin of Podophyllum and the alkaloidal salts of hydrastis and sanguinaria, came the utter neglect of these products by the Eclectic profession in behalf of the kindlier system of medication and the more rational ideas of therapeutics that came in the advent of Dr. John M. Scudder. The few items now employed are used in very small doses, in specific directions, and the dosage, as a rule, is constantly decreasing. But their commercial importance did not greatly suffer by the loss of the Eclectic patronage, for about the date of their discrediting in Eclecticism, they passed into the hands of pill makers and proprietary formula compounders, and the physicians who believed in heroic dosage. But even with these people only a few items have now any standing whatever, although it can not be denied that these few are most heroically and extensively prescribed and in proprietary physic most freely swallowed.

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The English Euonymin Craze.—A quarter of a century after the resinoids of America received their deathblow at the hands of the Eclectics, a peculiar craze for *Euonymin* struck England. The American manufacturers' lists quote two colors of the drug (see page 51), one green and the other brown. These two forms came into English demand, and owing largely to their exploitation by the celebrated Dr. Richardson, of London, so great was the "Euonymin" craze in that country that within a brief period American resinoid makers were overwhelmed with orders.* The root, root-bark, shrub, and the shrub-bark supplies of the crude drug employed for their manipulation became exhausted, whilst the price of all forms of the crude drug doubled and trebled. We know of single orders from London for one thousand pounds, each color of Euonymin, quick delivery. From 1885 to 1890 the English Euonymin craze was at its height, and during those years the English pharmaceutical and medical press teemed with articles concerning the wonderful remedy! The various Euonymins were examined for ash, and the old question of inorganic admixture was naturally revived, especially with the green-colored drug, where aluminum hydroxide is likely to be employed to precipitate the chlorophyl-bearing structures and associated materials from the evaporated alcohol extract, said hydroxide contaminating the product. (See Note C, p. 49). It was even reported that one lot of Euonymin contained much barium carbonate, a statement difficult to accept!

Numerous were the questionings and explanations naturally asked and offered, but in it all no one apparently thought to refer to Eclectic literature of the past, where, half a century before, the whole subject of the alkaloids, resins, resinoids, and concentrations, in all its phases, had been discussed in detail, and thrashed out to a finish. So it was that history *unnecessarily* (as is too often the case with people who read only their own literature) repeated itself, events in England, but on a smaller scale, following in nearly the track of the old alkaloidal-resinoidal-concentration epoch in America.

As abruptly as it began did the English concentration fad terminate, leaving but a few energetic resinoids, such as King's Resin of Podophyllum (representative of the class), still used in England, as it is both used as well as abused to-day, in all parts of the civilized world, as is shown in current pharmaceutical and therapeutical literature. (See Lloyd Brothers' Drug Treatise No. XX.)

* Dr. Richardson is noted also as having "discovered" the value of the old Eclectic remedy, *Gelsemium*, long after it was established and in great use in that school. But he added nothing new to its therapeutic applications.



E. S. Wayne

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The Lesson. — Comes now the lesson taught by the half century of turmoil in and among the alkaloids, resins, resinoids, and oleo-resins. Shattered ambitions, blasted hopes, disappointments generally, have their uses. The resinoid craze is not an exception, for it has already served several purposes, one being the establishing of the fact that in only a few North American drugs are found either alkaloids or resins of great individual merit, another being the dispelling of the illusion that a fragment can parallel the whole, if the whole be intelligently comprehended. Eclectic physicians learned from an experience not easily forgotten the lesson that

Dried Fragments of Drugs are not Representatives of Drugs.—An experience of more than three decades, commencing in a craze for energetic; or even poisonous, proximate principles, had, as already related, taught Eclectic physicians to their own satisfaction that a toxic constituent or a mixture of the separated dried products broken out of a drug by chemical means or created from drugs by the chemist's art, useful though each might be in its own sphere, did not typify or parallel the therapeutic qualities of the whole drug. They had learned by bitter experience that a poisonous fragment or ultimate, broken out of or created from a plant by chemistry, did not represent the therapeutic qualities of the structure from which it was derived. The once prevailing hope that a single, dominating constituent, or ultimate, or a definite substance present in, or obtained from a drug, could be taken to standardize the desirable therapeutic qualities of the combined medicinal parts of a plant complexity, also passed away. In the latter days of King and Newton, and in the coming prime of Scudder's efforts, heroic doses of shock-producing remedies became exceptions in the practice of Eclectics. The administration of violent ultimates and large doses to shock the system, even as regards active cathartics (now most discreetly used, when used at all, in Eclectic medication), gave way to kindlier methods. The doctrine of humanity to the disease-weakened sufferer, not brutality to the helpless, once more revived and became not merely ideals in theory, but logical facts in a successful practice. The original Eclectic motto, "*Vires Vitales Sustinete*" (Sustain the vital forces), so often lost to view by some people involved in the fallacy of the nineteenth century alkaloidal-resinoidal ultimates, became, as in the days of the fathers, a legitimate Eclectic watchword. By a final, natural *evolution* the school, after facing disaster, passed safely through the crisis of the alkaloidal-resinoidal craze of the sixties in the century that has passed.

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The Present.—At present, instead of overdoses of toxic ultimates, the trend in Eclecticism is toward greater questioning and conservatism than ever concerning vicious or possibly harmful medication. The old-time "Concentrations" have most of them been long since abandoned, displaced, or discredited as undesirable types of remedial agents. No longer are they sought as though they represented complex drugs. Small doses of kindly remedies, established by clinical study in disease, administered for curative action, not systemic shock, now universally prevail. The non-poisonous remedies, made of innocuous drugs, are now sought and are administered with a degree of therapeutic satisfaction unknown in past heroic dosage. Substances energetic or toxic, when used, are employed most cautiously and conservatively; small doses often repeated being the rule. The resins and alkaloidal salts of old, such as the sanguinarine compounds, are sometimes, but not often, prescribed; when prescribed, being in minute doses. Drug representatives such as plant textures and complexities, the poisonous constituents of which were considered as the standards of curative qualities by Eclectic pharmacists fifty years ago, and accepted as such by Eclectic physicians in the day of past evolution, are no longer therapeutic favorites, unless they are partially, or even wholly, freed from their toxic constituents. Such as opium and morphine were never Eclectic favorites, and now are most tenderly employed when employed at all, while the favorite Eclectic form of *nux vomica* is now a liquid preparation, in which strychnine is in minor proportion to other constituents. Thus the Eclectic methods of medication and the Eclectic remedies are, to-day, in marked contrast to those demanded under the ideas that yet prevail among physicians who believe that a remedy must be standardized in therapy from the toxic or physiological side, or who accept that therapeutic usefulness is in proportion to the poisonous viciousness of a drug. So great has been the advance among Eclectics in this direction that, as already intimated, even the preparation *Resin of Podophyllum*, once exclusively Eclectic, and originally employed as a drastic cathartic, has passed almost completely from Eclecticism into the practice of physicians of opposite ideals from those now prevailing in the school of its discoverer.* Concerning the revolution the half century has wrought in the therapy of the energetics once so freely used in Eclectic practice, among which Resin of *Podophyllum* was typical, Professor Felter, in

* In our opinion, the rank and file of the dominant school are not so firmly bound to the *poison* or *shock* treatment as a few imagine who think they speak for the profession, and are enthusiastic in that direction. We have reason to believe that, unless there be a change in the methods employed, a revolution will yet come in their ranks, as it did in Eclecticism.

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the *Eclectic Medical Journal*, July, 1909, thus tersely expresses the facts:

So long as men will blindly follow the text-book statements of the regular materia medicas that bryonia is only a drastic cathartic, and may be used for its derivative effect in dropsy, so long will they remain in ignorance of the true medicinal action of a remedy that many thousands of so-called "irregulars" are using daily, in small doses, with the most potent and beneficial effect. Perhaps no remedy illustrates the value of small dosage better than bryonia. With a wide and direct action in a variety of diseased conditions of the serous membranes and the nervous system when so given, it has in the large and drastic physiologic doses absolutely no place in medicine. When such drastic, purgative action is desired in dropsy by those who accord to it such virtues, it is passed by for other less unpleasant hydragogues. So in the large dose bryonia may be said to have no place in therapeutics. But in the small dose—how promptly it allays distress in pleuritic pain, in frontal headache, in the early stage of pneumonia, and in the milder forms of non-septic peritonitis. Few Eclectics would dispense with bryonia, and they always use it in the fractional dose.

Colocynth is another remedy of the same class. If the dose be large, gastro-intestinal inflammation is invited. If the fractional doses be exhibited, it allays irritation, prevents inflammation, and acts with marvelous precision in dysentery and allied conditions, when accompanied by sharp-cutting, colicky pains.

Ipecac was long ago recognized as having a dual action—in the large dose, emetic, and many times desirable; in the small dose, the best of anti-emetics and a remedy of supreme value in allaying gastro-intestinal irritation and inflammation. Yet, knowing and acknowledging the dual emetic and anti-emetic action of this drug in its different doses, the physicians who first made these discoveries let them rest without similar investigation concerning other equally potent drugs. Worse than this, they have refused to accept, or have chosen to ignore, the work of those who have made such investigations, which have incalculably enriched therapeutics. *Podophyllum* and its resinoid are now seldom employed in physiologic doses by Eclectic physicians, but as remedies, in small doses, to gently stimulate intestinal secretions, they have grown steadily in favor.

Retrospective.—We have thus briefly referred to incidents and events connected with the discovery and introduction of the "Concentrations," as well as to the passing out of the substances that, as a fad or craze, more than half a century ago, came perilously near disrupting the Eclectic school in medicine.

Out of it all came the introduction of a few resins and a few alkaloidal salts of American plants, but yet these few, introduced into the Eclectic school over half a century ago, comprise all, of any importance whatever, that are to-day used by any class of physicians.* In this connection, to close this chapter, we can well introduce the translation from a French publication of an article by the talented scholar, Dr.

* Strange that in a flora of over 12,000 species this should be true. On this phase of the subject we shall write more fully hereafter. (See page 47.)

THE ECLECTIC ALKALOIDS.

Charles Rice, chairman, for three decades, of the Committee of Revision of the Pharmacopœia of the United States :

The Eclectics form a class of physicians who reject the use of a large number of remedies of mineral origin, and particularly of all mercurial compounds, and replace them by vegetable remedies, chosen as much as possible from among indigenous plants. It is certain that the persevering and careful study that the adherents of this school have made of the action of several American plants has been very profitable to medicine in general. The regular profession never hesitate to make use of the truly useful among those discovered, whoever be the authors, but the system is very justly repudiated by the medical profession, because it is based upon a dogma. Many plants of which the Eclectics alone first availed themselves have ended by becoming the common property of the entire medical profession ; every practitioner has, and ought to have, the inalienable right of employing every therapeutical agent, provided it be not a patented or secret preparation, which he considers useful to his patient, whether the pharmacopœia has adopted it or not. But from the moment that a preparation is presented under the character of a special remedy, when its formula is unknown and kept secret, in such a manner that its preparation is monopolized by a particular firm or its composition can not be controlled by every pharmacist or physician, it should be proscribed. But such is not the case with the Eclectic preparations. Although I, like the majority of pharmacists and physicians, am not in accord with the Eclectics, from the standpoint of their theories, I must recognize the fact that they do not surround themselves with mystery ; like the homœopaths, they have their pharmacopœia, represented by the following work: "The American Dispensatory," by John King, M. D., 8th edition, Cincinnati, 1878.

Whatever opinion one may have regarding the ideas defended in this book, one can not but discover that it constitutes a precious encyclopedia of medical American plants, and their therapeutical uses. It is a very useful work for reference. Its author is as fine a botanist as a judicial observer of therapeutical effects.*—*Translation of pages 9 and 10 of Dr. Charles Rice's "Note sur Certains Médicaments Végétaux Américains."*

This treatise would not be complete as a historical record unless the position these substances occupy now were included. We therefore give, in the following pages, Lloyd Brothers' recent prices current with notes that we believe will fairly close the subject.

*To this we will add that the ideals and the efforts of the Eclectic profession were very highly appreciated by Dr. Rice in his latter days, as this writer can authoritatively testify.

THE ECLECTIC ALKALOIDS.

COMMERCIAL CONCENTRATIONS OF 1910.

(ALKALOIDS, RESINS, OLEO-RESINS AND RESINOIDS.)

(From Lloyd Brothers' Prices Current, Cincinnati, 1909.)

Notwithstanding the aforementioned remarkable record, some of the concentrations are still used in considerable amounts in legitimate therapy, as well as by private formula compounders. Many physicians employ established formulas containing them, while others use them singly or in favorite prescriptions, as occasion suggests. Old works on therapeutics carry them in many compounds still desired by some physicians who read after the old authors, whilst the makers of pills and tablets for home cure of disease, proprietary medicine makers of popular cathartics, etc., etc., employ such substances as podophyllin in immense amounts. Probably no substance, not excepting jalap, is more vital to the makers of cathartic proprietaries than is "Podophyllin." For this reason manufacturers of such plant preparations continue supplying the "Concentrations" to such physicians and mixers of medicines as yet employ them. The aforementioned explanations, and the statements that follow, especially the brief notes after the two lists offered (pages 47-53) are sufficient to introduce and permit of intelligent comment on the items in the prices current. Especially do we commend to the reader's attention the remarks and the notes that follow the lists (selected because they are of recent revision), which are essential to the historical completeness of this Bulletin.

TABLE OF CONCENTRATIONS. (With Notes.)

INCLUDING "RESINOIDS," ALKALOIDS, ALKALOIDAL
SALTS, ETC.

(For explanation of reference letters A, B, C, etc., see NOTES pp. 49-52.)

	Price per ounce. Bottle included.		Price per ounce. Bottle included.
Aletrin	A, \$0 50	Cerasin, (Prunin)	A, \$0 60
(from Aletris farinosa)		(from Prunus virginiana)	
Alnuin	A, 60	Chelonin	A, 1 00
(from Alnus serrulata)		(from Chelone glabra)	
Ampelopsin	A, 65	Chimaphilin	A, 80
(from Ampelopsis quinque- folia)		(from Chimaphila corym- bosa)	
Apocynin	A, 1 00	Chionanthin	A, 1 00
(from Apocynum cannabi- num)		(from Chionanthus virgini- cus)	
Asclepinin	A, 80	Cimicifugin (Macrotin) B,	50
(from Asclepias tuberosa)		(from Cimicifuga racemosa)	
Baptisin	A, 80	Collinsonin	A, 1 00
(from Baptisia tinctoria)		(from Collinsonia canadensis)	
Barosmin	A, 80	Colocynthin	A, 1 00
(from Barosma crenata)		(from Citrullus colocynthis)	
Betulin	A, 1 60	Cornin	A, 60
(from Betula alba)		(from Cornus florida)	
Caulophyllin	A, 50	Corydalin	A, 1 00
(from Caulophyllum thalic- troides)		(from Corydalis formosa)	

THE ECLECTIC ALKALOIDS.

	Price per ounce. Bottle included.		Price per ounce. Bottle included.
Cyripedin .....A,	\$1 00	Leptandrin .....A,	\$0 40
(from <i>Cyripedium pubescens</i>)		(from <i>Leptandra virginica</i>)	
Dioscorin .....A,	1 00	Liatrin .....A,	80
(from <i>Dioscorea villosa</i>)		(from <i>Liatris spicata</i>)	
Euonymin, Green .....C,	1 10	Liriodendrin .....A,	1 00
(from <i>Euonymus atropurpureus</i>)		(from <i>Liriodendron tulipifera</i>)	
Euonymin, Brown .....A,	1 10	Lobelin .....A,	1 20
(from <i>Euonymus atropurpureus</i>)		(from <i>Lobelia inflata</i>)	
Eupatorin .....A,	60	(not the alkaloid Lobeline)	
(from <i>Eupatorium perfoliatum</i>)		Lycopin .....A,	60
Euphorbin .....A,	1 60	(from <i>Lycopus virginicus</i>)	
(from <i>Euphorbia corollata</i>)		Macrotin (<i>Cimicifuga</i>), B,	50
Eupurpurin .....A,	60	(from <i>Macrotys [Cimicifuga] racemosa</i>)	
(from <i>Eupatorium purpureum</i>)		Menispermin .....A,	60
Eryngin .....A,	1 00	(from <i>Menispermum canadense</i>)	
(from <i>Eryngium aquaticum</i>)		Myricin .....A,	60
Fraserin .....A,	60	(from <i>Myrica acris</i>)	
(from <i>Fraseria walteri</i>)		Phytolaccin .....A,	80
Gelsemin .....A,	1 50	(from <i>Phytolacca decandra</i>)	
(from <i>Gelsemium semper-virens</i>)		Podophyllin, Brown .....G,	40
Geranin .....A,	60	(from <i>Podophyllum peltatum</i>)	
(from <i>Geranium maculatum</i>)		Podophyllin, Yellow .....H,	40
Gossypin .....A,	1 50	(from <i>Podophyllum peltatum</i>)	
(from <i>Gossypium herbaceum</i>)		Populin .....A,	40
Hamamelin .....A,	60	(from <i>Populus tremuloides</i>)	
(from <i>Hamamelis virginiana</i>)		Prunin (<i>Cerasin</i>) .....A,	60
Helonin .....A,	1 50	(from <i>Prunus virginiana</i>)	
(from <i>Helonias dioica</i>)		Ptelein .....A,	1 20
Humulin .....A,	90	(from <i>Ptelea trifoliata</i>)	
(from <i>Humulus lupulus</i>)		Rhein .....A,	2 00
Hydrastine (Berberine)		(from <i>Rheum officinalis</i>)	
Yellow Alkaloid .....D,	6 00	Rhusin .....A,	60
Hydrastine (Berberine)		(from <i>Rhus glabra</i>)	
Citrate .....D,	6 00	Rumicin .....A,	60
Hydrastine (Berberine)		(from <i>Rumex crispus</i>)	
Muriate .....D,	5 00	Sanguinarine Nitrate .....I,	3 00
Hydrastine (Berberine)		Sanguinarine Sulphate ..I,	3 00
Nitrate .....D,	6 00	Sanguinarine Principles	
Hydrastine (Berberine)		Combined .....J,	65
Phosphate .....D,	6 00	(from <i>Sanguinaria canadensis</i>)	
Hydrastine (Berberine)		Scutellarin .....A,	1 00
Salicylate .....D,	7 00	(from <i>Scutellaria lateriflora</i>)	
Hydrastine (Berberine)		Senecin .....A,	1 00
Sulphate .....D,	5 00	(from <i>Senecio aureus</i>)	
Hydrastine, Principles		Smilacin .....A,	1 60
Combined .....DA,	2 50	(from <i>Smilax officinalis</i>)	
(from <i>Hydrastis Canadensis</i>)		Stillingin .....A,	1 00
Inulin .....E,	80	(from <i>Stillingia sylvatica</i>)	
(from <i>Inula helenium</i>)		Taraxin .....A,	1 00
Irisin .....E,	60	(from <i>Taraxicum</i>)	
(from <i>Iris versicolor</i>)		Trillin .....A,	60
Jalapin (Resin of Jalap), F,	90	(from <i>Trillium erectum</i>)	
(from <i>Ipomoea jalapa</i>)		Viburnin .....A,	1 00
Juglandin .....A,	60	(from <i>Viburnum opulus</i>)	
(from <i>Juglans cinerea</i>)		Xanthoxylin .....K,	1 00
		(from <i>Xanthoxylum fraxineum</i>)	

THE ECLECTIC ALKALOIDS.

REMARKS AND NOTES.

Alkaloids.—Only five North American plants established in therapy yield alkaloids in any considerable amount, viz.: *Sanguinaria*, *Hydrastis*, *Gelsemium*, *Veratrum*, and *Lobelia*.^{*} Of these the alkaloids of two only, the old Eclectic *Sanguinaria* and *Hydrastis*, have ever been much valued in medicine, and these it is now known but imperfectly represent the drugs yielding them.[†] All the American alkaloids now employed to any extent were introduced into Eclecticism the first half of the nineteenth century.[‡] To the early uses of these old alkaloidal salts nothing of importance has been added in therapeutical directions, as can be seen by a study of the past record, and contrasting it with the commended uses of the present.

Nomenclature.—We terminate the name of the *alkaloids only* with the syllable *ine*, applying the termination *in* to such indifferent substances as resins, glucosids, etc. We thus differentiate the alkaloids of the list from the members of other classes, and designate them so plainly that no confusion concerning their scientific nomenclature can exist in the mind of an intelligent reader. Let it be therefore understood that substances in the preceding list that do not in name terminate with the syllable *ine* are *not alkaloids*.

Resins.—(Listed B, F, and G.) Of the legitimate drug resins, three only—resins of *macrotys*, *jalap*, and *podophyllum*—are of enough importance to merit an established position in therapy. The semi-resinous products (oleo-resins, akin to oils rather than resins) of such drugs as *aletris* and *iris* have long passed into disuse, in favor of more eligible and more representative liquid products of the drugs yielding them. *Scammony* has never been in the Eclectic list. (See tables, pages 30, 40, and 47-8, and the accompanying notes.) We terminate the names of the resins and other indifferent substances with the syllable *in*.

Oleo-Resins.—In the day of the popularity of the “resinoids” it was discovered that a few substances, more or less related, partook of

^{*}This appears remarkable. See Note, page 43.

[†]About 1885 Dr. Roberts Bartholow investigated *lobeline* (as made by us), physiologically and therapeutically. It failed to equal the hopes and expectations of physicians employing *lobelia*, and naturally came into neglect. See *Drugs and Medicines of North America*, 1885, Vol. II, pages 89-91.

[‡]The white alkaloid *hydrastine* may be excluded. It has no place in Eclectic therapy, and is perhaps the most objectionable constituent of the drug. It is a poison (see Bartholow's physiological investigations, *Drugs and Medicines of North America*, 1885, and Bulletin of Lloyd Library, No. 10, pages 156-161), and for that reason perhaps is taken as a standard of excellence by some physiologists. *Hydrastine* appeals to heroic medicationists, and in the United States Pharmacopœia is taken as the standard of excellence. However, the most popular (with physicians) of all preparations of *hydrastis* (Lloyd's *Hydrastis*) has contained for over a decade only a very small amount of this alkaloid, and is to be preferred (as shown by experienced investigation) if it contain *none at all*.

THE ECLECTIC ALKALOIDS.

the nature of oils and refused to dry. An attempt was largely made to classify these and distinguish them by the affix *din*, and to supply them in liquid form. Thus, in old Prices Current and lists of Concentrations will be found such names as *Iridin*, *Pteledin*, *Asclepidin*, and a few others. This nomenclature did not, however, prevail. These oleo-resins were never popular, and soon dropped from sight. They are, however, included in our list (pages 52 and 53), and are therein properly designated as *Oleo-resins*.

Unclassified Concentrations.—(Marked *A* in the list.) Such terms as *apocynin*, *gossypin*, *caulophyllin*, *cypripedin*, *phytolaccin*, *scutellarin*, *euonymin*, *ergotin*, etc., etc., comprise the majority of items that have no position in any scheme of scientific chemical classification. They are neither alkaloids, glucosids, resins, acids, nor anything else definite, and we contend now, as heretofore, that (regardless of therapeutic values) it is a misnomer to apply to such substances a systematic name carrying an established, scientific termination. Such preparations as these, notwithstanding the protest of the Eclectic authorities, were, however, introduced as "Concentrations" in the early history of American medicine, and were, as previously stated, included among the "*Eclectic Alkaloids, Resins, and Resinoids*." Their names, made of the respective plant titles, were terminated with *in*.

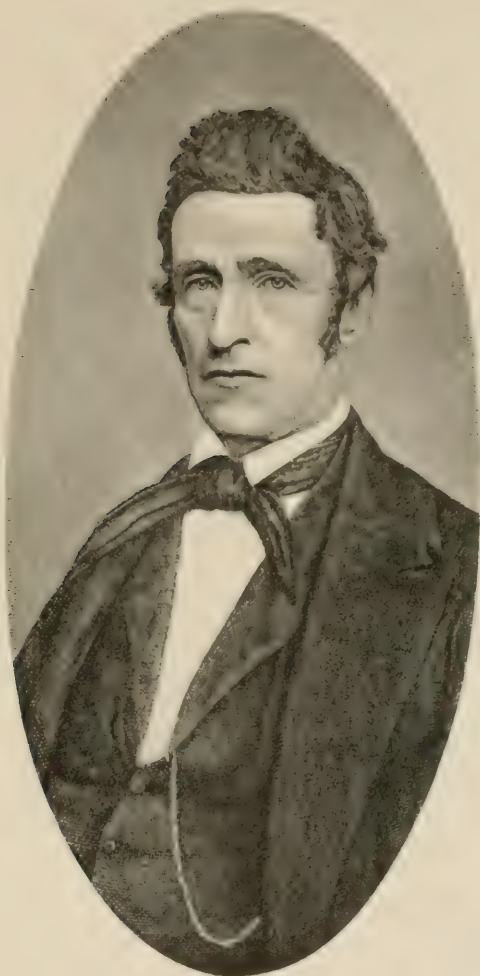
It does not necessarily follow, however, that such substances as these are altogether useless in therapy or innocent in action. Many of the incongruous preparations associated under the foregoing titles carry more or less of the drug qualities of the plants from which they are made, whilst some that stand without the semblance of a scientific formula are very energetic. In this connection we will add that a dried extract of *nux vomica* or of *hyoscyamus* does not lose its power to kill by reason of the fact that it is mislabeled. Nor does such a substance as the old Eclectic "Concentration" *colocynthin*, that has no scientific home or rational name, by reason of its faulty title fail to act as an active physic. On the other hand, a material capable of a definite formula may be of no significance whatever, therapeutically. Genistic acid, from gentian, while properly named, is of no known use, nor has crystalline xanthoxylin any established value.

With these remarks we introduce the following explanatory notes:

NOTES TO LIST OF CONCENTRATIONS, ALKALOIDS, ETC.

(Pages 45, 46.)

A. Products thus marked are not definite compounds, nor do they accord with or permit of any scientific chemical nomenclature. They were introduced in the early days of American medicine, and were originally known as "Eclectic



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Resinoids," but were never advocated by such Eclectic authorities as King and Scudder. They more properly belong with the "Powdered Extracts," but each item must necessarily be made by processes peculiar to itself.

B. This, known under the two names, "Cimicifugin" and "Macrotoxin," is a dried, resinous precipitate (*not a true resin*), from *Macrotys* (*Cimicifuga*). It was discovered by Dr. John King about 1835 (see history, p. 9), and introduced by him into general medicine about 1845. It is possessed of energetic qualities and needs to be carefully administered. Overdoses produce violent headaches.

C. This is a precipitate from a strong alcoholic extract of *Euonymus* (*Wahoo*), by means of sodium carbonate and alum solutions. It carries an excess of alumina, as do the other "Green Resinoids," when made by this (the original) process. In 1885 it came into English use, by reason of the reports of Dr. Richardson, of London. (See page 40.)

D. These are alkaloidal salts of the yellow alkaloid of *Hydrastis*, known to physicians of the present day both as *Hydrastine* and as *Berberine*. This very widely disseminated alkaloid was introduced into Eclecticism and established under the proper and rational name *Hydrastine*, long before the name *Berberine* was applied to it in any medical print. We therefore continue to recognize the name *Hydrastine*, primarily, in our lists and on our label, because it is, historically as well as by priority, the proper name, as well as because it is still the title used by the majority of physicians employing compounds of this yellow alkaloid. (See Lloyd Brothers' Drug Treatise No. XXIII, page 9.)

DA. The substance known for over fifty years as "*Hydrastine Principles Combined*," was the first "resinoid" of this drug. It carries much foreign material, such as the acrid resin and other peculiar proximate principles of *Hydrastis canadensis*. The name originated when the term "resin" was all potent. This preparation is generally used when simply "Yellow Hydrastine" is prescribed, and has been sent by us to our patrons for many decades when simply "*Hydrastine*," or "*Hydrastine P. C.*" is ordered.

As a remedy for internal administration, where it is not necessary to employ a solution, we consider the "*Principles Combined*" as preferable to any single alkaloidal salt of the drug, mainly because in the experience of physicians in whose judgment we confide it is a better representative of the desirable constituents of *Hydrastis* than is any single drug product of this plant, and because it carries but little of the poisonous white alkaloid.

We consider the white alkaloid, ("*Hydrastine*," so-called), too violent to dominate any *Hydrastis* preparation, and for this reason we exclude it, largely, from our "*Principles Combined*." We consider it harmful, if in excess, in any established field of *Hydrastis* therapy, and we believe it should be totally excluded from all preparations intended as soothing applications, or as tonics in disturbances of the stomach.

E. This is not the oleo-resin of *Iris*, which, introduced and used under the name *Iridin*, (see page 52), over half a century ago, is now obsolete. (See "Oleo-Resins," pages 50-53.)

F. Resin of *Jalap*, in the early days of the Eclectic Alkaloidal-Resinoid-Concentration excitement, was called *Jalapin*. The name is perhaps subject to criticism, but for obvious reasons, (see page 8), it is retained in our list.

G. The genuine, dark-colored Resin of *Podophyllum*, now official in the Pharmacopœia of the United States, is the same as that made in 1835 by its

OLEO-RESINS AND OILS BY ETHER.

discoverer, Professor John King, M. D., and named by him, "Resin of Podophyllum." It was also the first of the line afterwards known as "Resinoids." (See page 7, etc.) The reputation of "Podophyllin," the commercial name of the drug, was established on the use of this article.

H. "Podophyllin" of a yellow color is an alum lake, produced by means of alum or other chemicals. For apparent reasons, (commercial), that need not be stated, it once dominated the "Podophyllin" drug trade of America. Yellow Podophyllin is uncertain in its action, and is very griping. We neither make it, nor supply it. (See Lloyd Library Bulletin No. XII.)

I. These alkaloidal salts of Sanguinaria carry in acid combination the impure (mixed) alkaloids of the drug, for the root of Sanguinaria canadensis contains two or more alkaloids that are closely related to each other and have been used in natural association from the date of their introduction. These alkaloids are white, but with acids they form very acrid salts, all of which have a red color. They should be used cautiously.

J. The preparation used under the name "*Sanguinarine Principles Combined*" is a complicated form of the alkaloid, being a precipitated mixture of crude, alkaloidal compounds, resins, and other products of Sanguinaria. It is a powder having a buff or bluish-gray color, which changes to red when moistened with a sour acid. The Sanguinaria alkaloids and all their salts are exceedingly irritating to mucous membranes, and the inhalations of their dust are to be avoided as much as possible.

K. The bark of Xanthoxylum (*Xanthoxylum americanum*) contains a white crystalline glucosid of no ascertained medicinal value. The old-style "concentration" furnished under the name "Xanthoxilin" has been employed by physicians of repute for over half a century. It contains other principles of the bark, together with the aforementioned glucosid, Xanthoxylum, which, in our opinion, as already stated, is not of importance.

OLEO-RESINS AND OILS BY ETHER.

These preparations are intimately connected with the concentrations, as also were the persons concerned in their introduction and manufacture.

Professor John King was a fluent French scholar. He read all the French publications, and kept up everything in the line of French pharmacy and chemistry. Naturally, therefore, he caught the advancement that was being made in France in these directions, and be it known, France, in the beginning of the last century, seemed to take the lead. Consequently, when King became interested in progressive medicine, his knowledge in these directions was most useful to him, and after he stumbled on to resin of podophyllum, in 1835, he turned his attention to pharmaceutical manipulation, on both a small and a large scale, but he did not offer any products therefrom in commerce, utilizing them in his own practice. He discovered oleo-resin of iris

OLEO-RESINS AND OILS BY ETHER.

very soon after he discovered the resin of phodophyllum, and the resin of cimicifuga, these three drugs being for a long time three of King's favorite remedies. (See preceding history.)

Then, about 1845, when the Eclectic craze for resins, or rather resinoids, was taking their care, King became associated in Cincinnati with the Eclectic Medical Institute, and threw the influence of his opportunities and knowledge into the Eclectic field.

About that time, (1846), after the Eclectic oleo-resins had been introduced, Professor Proctor translated from the *Pratique des Chimie*, for the *American Journal of Pharmacy* an article on "Ether Extraction in the Making of Oleo-Resinous Extract of Cubebs," and in 1849 read a paper before the American Pharmaceutical Association, on the "Etherial Oleo-Resins." This was their first practical introduction to the American profession outside of Eclecticism.

The Eclectic oleo-resins and vegetable oils had, at that date, however, been well established in the practice of the Eclectic physicians, and there was an increasing demand for them, in connection with the concentrations, previously described in our publication. In 1859 Professor Proctor further reported to the American Pharmaceutical Association "Formulæ for Fluid Extracts," among which he included ten oleo-resins, and upon these were based the line of oleo-resins introduced into the Pharmacopœia of the United States in 1863. The record may be summarized as follows:

The Pharmacopœia of 1850, appearing in 1853, included among the Fluid Extracts two oleo-resins, *capsicum* and *black pepper*, neither of which were then used in Eclectic medicine. In 1863, the Pharmacopœia introduced other oleo-resins, some of which had been employed in Eclectic medicine for at least two decades. Excepting these, and the oleo-resin of *male fern*, none of these Pharmacopœial oleo-resins came into general use.

This brief summary will introduce the plant preparations known as the Eclectic *Medicinal Oils*, *Oils by Ether*,* and *Oleo-Resins*, concerning which the prices current of Lloyd Brothers gives the most copious notes and comments. From it we reproduce as follows:

"They are complicated and often very concentrated solutions of energetic principles of the plants yielding them, but are not distillates, such as are the Essential Oils. A few, such as Oil of Lobelia, Oil of Stillingia, and Stillingia Liniment (which we include in the list), are very popular, and justly so, because they

* Oils by Ether are made by extracting drugs by means of Sulphuric Ether, which, by evaporation, leaves a fixed oil and other ether-soluble products. An *Ethereal Oil* is a *volatile* or *essential* oil, obtained usually by distillation.

OLEO-RESINS AND OILS BY ETHER.

are very useful and have been long established as remedial agents. Others, such as Iridin and Pteleidin (marked A), are obsolete Eclectic oleo-resins made after the method of preparing Resin of Podophyllum. They are mixtures of vegetable oils, resins, chlorophyl, and dissolved substances, the oleo-resins predominating. Oil of Male Fern, a European preparation akin to the oleo-resins, is included in the list, as is also the invaluable old, standard, Stillingia Liniment.

TABLE OF OLEO-RESINS AND OILS BY ETHER.

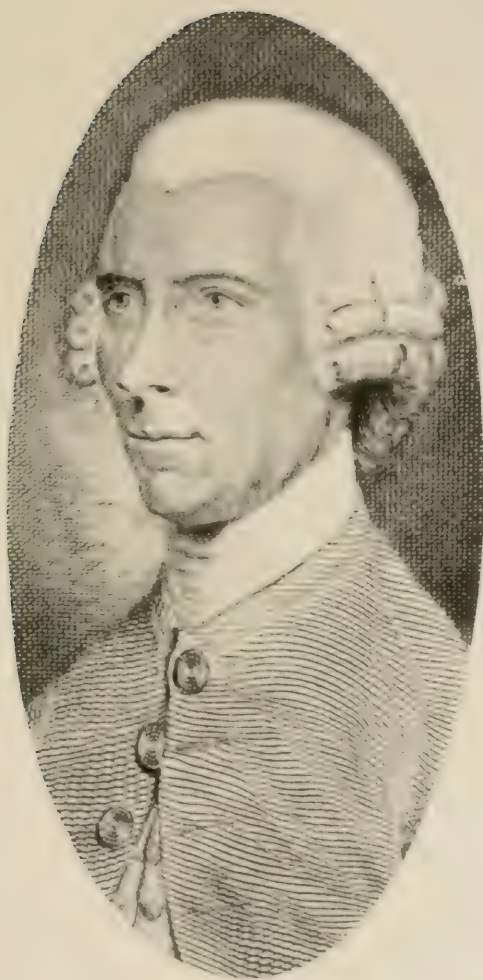
With Notes.			
	Prices per ounce.		Prices per ounce.
Aletredin (Oleo-Resin) ..A, ..	\$0 75	Oil Capsicum	B, .. \$0 60
(from Aletris farinosa)		(from Capsicum annum)	
Asclepedin (Oleo-Resin) ..A, ..	75	Oil Lobelia	C, .. 90
(from Asclepias tuberosa)		(from Lobelia inflata)	
Eupurpurin (Oleo-Resin) .A, ..	75	Oil Male Fern .....	.. 22
(from Eupatorium purpureum)		(from Male Fern, Dryopteris filix-mas)	
Heledin (Oleo-Resin).....A, ..	75	Oil Stillingia	D, .. 80
(from Helonias dioica)		(from Stillingia sylvatica)	
Iridin (Oleo-Resin).....A, ..	75	Stillingia Liniment	E, .. 25
(from Iris versicolor)			

NOTES ON OILS AND OLEO-RESINS.

A. These are natural mixtures of fixed oils and resins in which are dissolved characteristic principles of the drugs from which they are obtained. The paragraph introducing them (pages 50 and 51), together with other preceding references, is self-explanatory.

B. Oil of Capsicum. (*Am. Disp.*)—This is a very powerful preparation and must be very carefully employed. It is an active stimulant and may be added to liniments, poultices, etc., whenever excessive stimulation or rubefaction is desired. It is too active for use as an internal remedy, except in very small doses, not in excess of one drop, and then should be largely diluted with syrup. A similar preparation is official in the United States Pharmacopœia under the name Oleoresin Capsicum.

C. Oil of Lobelia.—"One drop of the oil triturated with one scruple of sugar, and divided into from six to twelve doses, will be found highly useful as an expectorant, nauseant, sedative, and diaphoretic, when given every one or two hours, as may be required. As a local application, much benefit may be derived from it where a particular nerve is to be quieted or a muscle to be relaxed. An excellent liniment may be made of a mixture of half an ounce each of oils of amber and sassafras, a drachm of oil of lobelia, and half a drachm of oil of capsicum."—*Am. Disp.*



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REFERENCES.

D. Oil of Stillingia.—This is an Eclectic remedy, and highly valued. The oil is too active for internal use unless well mixed with mucilaginous substances. In small quantities of not over a drop on a lump of sugar it works very effectively in cases of hoarseness and other throat troubles. This oil is the principal ingredient in the well-known Eclectic preparation called Compound Stillingia Liniment.

E. Stillingia Liniment. — (Compound Stillingia Liniment.) The name of this preparation is misleading, because the word *liniment* leads one to think only of a preparation for *outward application*. The larger amount of Stillingia Liniment is used *internally*, in which direction we consider it invaluable. Its uses are aptly expressed by Dr. Scudder, as follows:

This old remedy is most efficient for the relief of long-standing and obstinate coughs. For this purpose, we direct from 1 to 2 drops upon a lump of sugar, two or three times daily; and if there is an affection of the larynx, that it be freely applied to the throat; in the first stages of croup, give to a child two years old $\frac{1}{2}$ to 1 drop upon a lump of sugar every hour or two, as necessary. It is also one of the best applications to the throat in croup. SHAKE WELL BEFORE USING.—*Scudder's Materia Medica and Therapeutics.*

REFERENCES.

To give a complete list of useful references, would necessitate the itemizing of a great part of the American *Materia Medicas* of the past century. The following are of importance as being in direct connection with the preceding text. They are from publications that often carry a large number of articles bearing on the subject, and to these a reader is naturally referred in the study of the problem:

AMERICAN DISPENSATORY:

1852. Page 314. (Edition I, King & Newton.)
1895. Pages 1168-1169. (Edition XVII, King & Lloyd.)

AMERICAN JOURNAL OF PHARMACY:

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|----------------------|-----------------|
| 1832. Pages 273-275. | 1855. Page 388. |
| 1847. " 165-172. | 1856. " 41-91. |
| 1851. " 329. | 1861. " 299. |

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